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UNIVERSITY STUDIES

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I.—*On the Magnetic Separation of the Lines of Barium, Yttrium, Zirconium, and Osmium*

BY B. E. MOORE

I. INTRODUCTION

The investigations of Balmer,[1] followed by Rydberg[2] and by Kaiser and Runge,[3] showed that many of the spectral lines of different substances formed series which could be expressed in a simple empirical equation. Preston,[4] in the study of the Zeemann effect, observed that similar series in different substances had identical magnetic separation of the lines, when these separations were measured in wave-frequencies instead of wave-lengths. Preston's data were very meager, and his law was first thoroughly established by Runge and Paschen.[5] Inversely, then, lines of like magnetic separation are members of a series, according to Pres-

[1] *Wied. Ann.* 25, p. 80, 1885.

[2] *Phil. Mag.* (5), 29, p. 331, 1890. *Zeit. Ph. Chem.* 5, p. 227, 1890. *C. R. Chem.* 110, p. 394, 1890. *Kgl. Svenska Vet Akad. Handl.* 32, Nr. 11, 1890. *Astrophys. Jour.* 6, pp. 239, 338, 1897.

[3] Runge. *Report Brit. Assoc.* 1888, pp. 576–77. Kaiser and Runge. *Wied. Ann.* 41, p. 302, 1890; 43, p. 384, 1891; 48, p. 126, 1893; 52, p. 93, 1894. *Berl. Ber.*, pp. 639, 759, 1895. *Astrophys. Jour.* 3, p. 4, 1896. *Wied. Ann.* 61, p. 641, 1897. *Astrophys. Jour.* 8, p. 70, 1898.

[4] *Phil. Mag.* (5), 46, p. 325, 1898. *Proc. Royal Dub. Soc.* VI, p. 385, 1898. *Proc. Royal Dub. Soc.* VII, part II, p. 2.

[5] *Sitzungsber. de Berl. Akad.* am. 6 Feb. 1902. *Sitzungsber. de Berl. Akad.* am. XIX, pp. 380, 720, 1902. *Sitzungsber. de Berl. Akad.* am. X, p. 417, 1904. *Astrophys. Jour.* XV, pp. 235, 333; XVI, p. 123.

ton's law, and therefore the magnetic separation may be used to establish series. In fact, Runge suggested this possibility, and applied it in barium where no series had been discovered. He found that barium gave representatives of series, but not in sufficient number to establish series.

The following experiments propose to use this inverse method, firstly in a more complete study of barium, and then in other substances wherein no series have been found, to see if a series relationship can be established in any of the different types of magnetic separation.

II. Experimental Method

The spectral lines were photographed by means of a 21-foot concave grating with fixed circular camera. The light consisted of a spark of the substance which had been dried upon thin carbon plates and so placed in a strong magnetic field that the spark was parallel to the lines of force.[1] Owing to the varying intensity of the different lines, photographs were taken with different times of exposure, varying from fifteen minutes to two hours in the violet and up to six hours in the red. The photographs were all taken with the pole pieces at the same distance apart, so that by varying the current on the electromagnetic circuit one could obtain *ad libitum* any field strength up to the maximum of 24,400 lines per sq. cm. The field strength was determined from repeated measurements of the separation of calcium line 3968.6, which occurs as an impurity in the carbon electrode, and from a few special photographs of zinc line 4680, assuming Runge's measurements for these lines at 31,000 C. G. S. units to be correct. All calculations are given at the above maximum field strength. Other field strengths were used to determine the true components of lines very close together or to obtain readings for overlapping components. Frequently such lines are determined from the distance of the one free component from the undisturbed

[1] Many substances adhere so well to carbon that the writer thinks this plan, together with the circular camera, will make it possible to photograph some of the promising costly substances.

position. Photographs of vibrations parallel to the lines of forces were taken upon one set of plates, and perpendicular to the lines of force upon another set of plates. This was effected in the usual way by means of a calcite prism. Photographs taken without the calcite, i. e. with both the parallel and perpendicular components on one set of plates, were used only to obtain the relative intensity of the parallel and perpendicular components. In these photographs the parallel and perpendicular components are often so close to each other as to prohibit their separation and hence a knowledge of their respective intensities. In triplets of large separation, however, it was a matter of no difficulty. By a double comparison of such lines with corresponding components on parallel and perpendicular plates the ratio of the intensities of the parallel and perpendicular plates is established. The lines may then be compared on perpendicular and parallel plates, although the conditions of exposure and development may have been quite different. But withal there is a chance for a very large error in intensities, since there is a wide range in width and depth of the shadows, and no experimental method employed to compare the intensity of the shadow, as may be done in photometry or spectrophotometry.

The variation in actinic sensibility of the plates throughout the spectrum is enormous, so that one must resort to differently prepared plates. Furthermore, the red sensitive plates, self-prepared with diacyamin, were far from uniform. Hence, a comparison of intensities of different lines, which is very important in investigation for series, can be only roughly accurate within a short spectral range. This is generally sufficient to show that two or more near lines of like magnetic separation, but of great inequality in intensity, do not belong to the same series. This is all that can be expected from the intensities given in the following experiments. How great the variations in intensities may be under the different conditions of experiment may be seen by comparing the intensities here recorded with those given in Exner's and Hascek's tables which have been freely used. There is enough similarity in intensities to make their table serviceable for the identification of lines.

Intensities are recorded for the components of the first order lines, whether the lines were measured in first or second order. The lowest intensity 1 is just observable. It is measurable only when very favorably located in a group of components, and then with no special accuracy. A line of intensity 2 is capable of fair measurement in groups of several components, but is not satisfactory in a doublet of broad separation. Intensity 3 is the lowest that is satisfactory under the latter conditions. Diffuse lines of higher intensities may also be unsatisfactory. A pair of components which are diffuse outward or inward indicates the presence of outer or inner weak components, which may be brought out when self-induction, capacity, slit-width, and exposure of plates have been properly balanced. Broad single lines suggest a similar possible resolution. Hence a record of these facts may be helpful even if the resolution has not been effected. The accuracy of the readings also depends upon the sharpness of the lines. Where weakness, diffusion, or presence of overlapping components has made a reading less accurate, the result is tabulated in brackets. The bracketed values are still close enough to give a reasonable idea of the magnitude of the separation. Overlapping components can usually be circumvented by varying the field strength. However, this did not always suffice, and it was necessary to omit an occasional component in a line, e. g. the outer violet component of zircon 3573.3. There is large variation in definition among the lines of a substance. This is particularly noticeable in barium. The lines of osmium are uniformly exceptionally sharp, so that the readings in the latter possess nearly three times the accuracy of the former. Yttrium and zirconium occupy an intermediate position. The separations are determined from five readings for each component. These were all repeated, and in most cases the repeated readings were taken upon other sets of plates. If these readings showed an unwarranted deviation from the old result, the line was subjected to further analysis upon both plates. In zircon there is certainly an error of .005 mm. possible. Cases of double the magnitude may have escaped my attention, but such cases are few. This value gives a minimum error in $\Delta\lambda/\lambda^2$ in the second order at 4500 of .025, and a maximum

error in the first order at 3250 of .09. Hence it was desirable as far as possible to limit the readings in the shorter wave-lengths to the second order photographs.

The identification of the lines in the violet and ultra violet spectra was made by Exner-Hascek's spark spectrum tables, which generally proved very satisfactory. An occasional difficulty was met; for example, in zirconium a very well-defined line of eight components was found at about 4214 which failed to identify with impurities or with Zr. 4214.58. It does, however, identify with the arc light table line 4214.05. Such a difference in arc line wave-length and spark line wave-length is very exceptional, but in the absence of line 4214.58, it indicates that line in question is the same. Rough measurements frequently gave readings closer to the arc light lines than the spark lines, and many such might have occurred had very careful comparator measurements of distances from line to line been made. Sometimes such comparator measurements are necessary in identifications, as it may be either a required line or an impurity. Difficulty was met with in three lines toward the red of 3392.20. These eight lines measured from 3392.20 gave 3393.36 instead of 3393.30; 3394.96 instead of 3394.79, or possibly this is another line; and 3396.87 instead of 3396.71. A fourth line 3396.49 is certainly in close enough agreement with 3396.51. Several other lines appeared which have not been identified.

III. Explanation of Tables

The abbreviations in the tables have the following significance, viz.: λ, wave-length; $\Delta\lambda/\lambda^2$, the change in vibration per cm.; *s*, vibrations perpendicular to the lines of force, and *p*, parallel to the same; *H*, principal series; *G*, greater wave-length; *K*, smaller wave-length; *N*, subordinate series; *S*, satellite; *h*, principal line; *R*, observations according to Runge; *M*, observations according to Moore; *i*, intensity. Column A gives the approximate value of the components represented in terms of a small separation, called the "interval," multiplied by small numbers called "factors." The factors represent the ratio of the distances of the successive

components from the position of the undisturbed line. Column B gives "remarks." Inasmuch as duplicate "remarks" frequently occur, they have been designated by the following abbreviations, viz.: D, diffuse; D_r, diffuse toward the red; D_b, diffuse toward the blue; D_i and D_a diffuse inward and outward respectively, which generally suggests the presence of interior and exterior weak components respectively; w, slightly broadened; b, much broadened; b_o and r_o blue and red components respectively overlapped by component of an adjacent or foreign line; *ni*, not identified, i. e. the line does not compare with any line in Exner's and Hascek's tables. Special remarks are indicated by numbers which are explained at the foot of their respective tables. In the quadruplet tables, the s- and p-components are each designated by a double sign $\pm$ to avoid repetition. The s-component is recorded first. The double sign, therefore, means two readings. The triplet s-components are similarly designated and the *p-zero* component is omitted. Two intensities are frequently given in the triplets. The first recorded value, then, represents the s-component and the second the p-component. When there are three intensities for triplets, the outer s-components are unequally intense. The first reading is, then, the red and the third the blue component. When only one intensity under triplets is given it refers to the s-component, and the p-component has twice the intensity.

IV. Barium

The barium lines for wave-lengths shorter than 5854 were measured from plates exposed by Professor Runge. Much time was spent in trying to obtain stronger photographs of barium to bring out the weaker lines. These lines were either not upon the new plates or too diffuse for satisfactory measurements. A few of the sharpest lines of the new plates were measured and found in agreement with measurements made from Professor Runge's other line. These observations and those by Professor Runge upon barium I have reduced to the field strength, 24400 C. G. S., used in all subsequent measurements. The photograph of the red spectrum yielded all lines but two in Kayser and Runge's arc spectrum

and several new lines, most of which are weak. The wave-lengths of these lines are determined by their distances from lines already known, and the Angstrom scale values determined from known second order iron lines. Constant use of this iron calibration with zircon and Yttrium lines, along with Exner's and Hascek's tables, leads me to think that the new wave-lengths may be relied upon to within 0.1 Angstrom unit. The intensities for the red spectrum are given, and show the comparative intensities for that part of the spectrum. When one value only for intensity is given it refers to the perpendicular component, and the omitted parallel component has about double the intensity. Exceptions to this are noted under some lines.

In Table Ba_1 are given the values of $\Delta\lambda/\lambda^2$ for lines observed by Runge and Paschen and remeasured by the author for comparison of accuracy obtainable. Barium has been found the poorest substance of the four studied for such a comparison.

In Table Ba_2, the line 6675.3 has its components in the ratio of $\pm.635$ (0, 1, 3); the line 5997.4 may be represented by $\pm.55$ (1, 2, 3); the line 5971.9 by $\pm.30$ (2, 5); and the line 4580 possibly by $\pm.10$ (4, 8, 15).

Table Ba_3 contains a list of triplets arranged in groups with like separation. The omitted parallel component is in the position of the line without field, i. e. with zero separation. Groups I, III, and IV stand in the simple ratio of 3–2–1. The separation in group II differs from group III by 1/11. The separation in group III Professor Runge has designated the normal triplet (see later in VIII, Comparison of Substances) "*a*"; or these groups are $3a/2$, $a, a/2$, and $12a/11$. Groups I, III, IV are represented in one single line 5997.4 excepting the zero component. Group I is also represented in 4166, group II in 5854, and group III also in 4554.

In Table Ba_4 are the remaining lines of barium, and under "remarks" are indicated lines of several components which have the value of the triplet. It will be seen from these tables that the triplets look like lines of several components with some components suppressed. Or, what is more significant, the magnitude of the separations reduces to a few in number and recurs in different

types of separation. Runge has noted a vibration difference per cm. of 1691 in two pairs of lines. These pairs are 4166.24 and 3891.97; and 6497.07 and 5853.9. The longer wave-length of the first pair corresponds to the satellites of the first adjacent series, and the remaining line to the same series' shorter wave-length. In the second pair of lines the shorter wave-length is the satellite. The longer wave was not measured. The measurements here gave a value of $\pm.93$ for $\Delta\lambda/\lambda^2$, which is closer to the triplet value $\pm.915$ of the first adjacent series' shorter wave-length than the value $\pm.87$ for 3892. Line 6487.7 possesses the same separation as the line 6497.1, but is characterized by the perpendicular components being much stronger than the parallel. The separation of the triplet lines in group II have the same separation as the middle line of the first subordinate series.

TABLE Ba1

H. G. 4934 λ		2 N. K. 4525 λ		2 N. G. 4900 λ		H. K. 4554 λ		1 N. K. 5854 λ		1 N. S. 4166 λ	
R.	M.	R.	M.	R.	M.	R.	M.	R.	M.	R.	M.
—1.44	—1.45	—1.42	—1.44	—1.75	—1.83	—1.75	—1.83	—1.76	—1.76	—1.63	.....
— .74	— .72	— .76	— .72	—1.09	—1.11	—1.08	—1.11	—1.19	—1.19	—1.16	.....
+ .73	+ .71	+ .75	+ .74	— .36	— .35	— .36	— .35	— .92	.....	— .88	— .87
+1.45	+1.46	+1.45	+1.44	+ .35	+ .37	+ .35	+ .37	+ .58	— .58	— .62	.....
.....	.....	.....	.....	+1.07	+1.11	+1.06	+1.10	+ .58	+ .57	+ .55	.....
.....	.....	.....	.....	+1.75	+1.80	+1.79	+1.82	+ .91	.....	+ .90	+ .87
.....	.....	.....	.....	.....	.....	.....	.....	+1.19	+1.16	+1.14	.....
.....	.....	.....	.....	.....	.....	.....	.....	+1.76	+1.74	+1.70	.....

TABLE Ba_2

6675.3 λ[1]		5997.4 λ		5971.9 λ[2]		4580 λ	
i	$+\Delta\lambda/\lambda^2$	i	$+\Delta\lambda/\lambda^2$	i	$+\Delta\lambda/\lambda^2$	i	$+\Delta\lambda/\lambda^2$
5	— 1.90 *s*	3	—1.64 *s*	8	+1.49 *s*	.....	—1.54 *s*
1	—(.64) *p*	6	—1.10 *p*	10	.61 *p*	.....	— .81 *p*
1+	.00 *p*	3	— .56 *s*	10	.60 *p*	.....	— .38 *s*
1	+(.63) *p*	3	+ .54 *s*	8	1.49 *s*	.....	+ .39 *s*
5	+ 1.90 *s*	6	+1.10 *p*	.....	....	.....	+ .81 *p*
.....	.....	3	+1.66 *s*	.....	.....	.....	+1.46 *s*

TABLE Ba_3

GROUP I			GROUP II			GROUP III			GROUP IV		
λ	i	$\Delta\lambda/\lambda^2$	λ	i	$\Delta\lambda/\lambda^2$	λ	i	$\Delta\lambda/\lambda^2$	λ	i	$\Delta\lambda/\lambda^2$
6694.4[3]	5	±1.66	6527.6[4]	12	±1.24	6483.1	8	1.14	6653.7	4	.55
6341.9	8	1.59	6148.6	3	1.17	6182.6	2	1.08	6611.8	8	.56
4692	..	1.65	6141.9	30	1.20	6165.4[4]	2	1.06	6433.5	6	.57
4574	..	1.64	5778	..	1.22	6063.3	12	1.10	6019.7	10	.555
4506	..	1.67	4416	..	1.18	5988.1	...	1.09	4132.6	...	.56
4432	..	1.64	4131	..	1.18R	5826	...	1.12	.....	...	.....
4414	..	1.62		..	1.18M	5336	...	1.11	.....	...	.....
3889.4	..	1.68	3993[4]	..	1.24	4727	...	1.11	.....	...	.....
.....	..	.....	3071.7	..	1.17	4283	...	1.07	.....	...	.....
.....	..	.....	.....	..	.....	3935	...	1.09	.....	...	.....
.....	..	.....	.....	..	.....	3501	...	1.11	.....	...	.....

[1] *s*-components of 6451 agree with this and possibly the *p*-components, as the latter appears a broad weak band rather than a single line.

[2] *s*-components are broad and may resolve into two lines each. They are strongest at center. This is not usually the case with lines which resolve with better definition.

[3] *s*-components are each nearly twice as strong as the *p*-components. In the other lines, the *p*-components are the stronger lines.

[4] May possibly not belong in this group.

TABLE Ba4

λ	i	Δλ/λ²	REMARKS	λ	i	Δλ/λ²	REMARKS
6687.5	..	.....	Triplet, too weak	6409.3	6	.....	Broad, not apparently separated
6630.5	..	.....	Triplet, too weak				
6595.55[1]	10	± .635	Compare 5854	6403.1	4	± .84	.....
6548.3	2	.63	Compare 5854 Not Cu 3274.1 whose separation =1.50	6398.84	..	.....	Broad. In appearance like lines with several compon'ts
				6200.3	..	.....	Triplet, too weak
6498.9	8	1.48	.....	6192.1	3	.89	Compare 5854
6497.1	20	.93	.....	6132.2	3	1.88	Compare 5854
6495.3	2	.68	Not Cu 3247.66 whose separation =1.10	6111.0	10	1.28	8a/7?
				5519	..	1.02	.....
				4600	..	1.53	Compare 4580
6484.7[1]	6	.93	Not Yt 3242.43 whose separation =1.33	4403	..	1.28	.....
				4350	..	1.83	Compare 4554
				3996	..	1.38	.....
6451.0[2]	3	1.89	.....	3910	..	.84	.....
6435.2	4	1.29	8a/7?	3892	..	.87	.....

V. YTTRIUM

The two following lines have twelve and ten components respectively:

3818.49 λ

i	Δλ/λ²	A
2	—1.74 *s*	4×.433
4	—1.29 *s*	3
10	— .88 *p*	2
3	— .85 *s*	2
2	— .44 *p*	1
2	— .42 *s*	1
2	+ .42 *s*	.....
2	+ .43 *p*	.....
3	+ .84 *s*	.....
10	+ .88 *p*	.....
3	+1.33 *s*	.....
2	+1.74 *s*	.....

4235.89 λ

i	Δλ/λ²	A
2	—(1.26) *s*	7×.18
2	—(.89) *s*	5
6	.71 *p*	4
2	—(.54) *s*	3
2	— .36 *p*	2
2	+ .36 *p*	.....
...	.....	.....
6	+ .71 *p*	.....
...	.....	.....
...	.....	bo

[1] The *s*-components are approximately double the intensity of the *p*-component.

[1] See observation [1] on p. 9.

The following five lines have nine components each:

4398.21 λ		
i	$\Delta\lambda/\lambda^2$	A
1+	—(1.72) *s*	9×.19
2	— 1.33 *s*	7
6	— .95 *s*	5
4	— .38 *p*	2
6	.0 *p*	0
4	+ .38 *p*	.....
6	+ .95 *s*	.....
2	+ 1.34 *s*	.....
1?	..... *s*	.....

4199.46 λ		
i	$\Delta\lambda/\lambda^2$	A
6	—2.73 *s*	5×.54
3	—1.58 *s*	3
6	—1.02 *p*	2
1+	— .54 *s*	1
10	.0 *p*	0
1+	+ .58 *s*	.....
6	+1.02 *p*	.....
3	+1.61 *s*	.....
6	+2.73 *s*	.....

3950.51 λ		
i	$\Delta\lambda/\lambda^2$	A
8	—1.51 *s*	3×.50
4	— .98 *s*	2
20	— .51 *p*	1
2	— .49 *s*	1
15	.0 *p*	0
2	+ .49 *s*	.....
20	+ .49 *p*	.....
4	+1.02 *s*	.....
8	+1.51 *s*	.....

3628.89 λ		
i	$\Delta\lambda/\lambda^2$	A
10	—1.92 *s*	3×.63
5	—1.27 *s*	2
8	— .66 *p*	1
2	— .64 *s*	1
10	.0 *p*	0
2	+ .62 *s*	.....
8	+ .66 *p*	.....
5	+1.28 *s*	.....
10	+1.92 *s*	.....

3584.71 λ		
i	$\Delta\lambda/\lambda^2$	A
12	—2.07 *s*	8×.265
6	—1.32 *s*	5
10	— .76 *p*	3
3	— .55 *s*	2
15	.0 *p*	0
3	+ .53 *s*	.....
10	+ .74 *p*	.....
6	+1.31 *s*	.....
12	+2.07 *s*	.....

In the line 4398.21 a common difference between components of the value .38 occurs six times. The interval in 4199.46 seems twice the interval in 3584.71, or the two lines may both have the smaller interval in different proportions. In each of the lines 3950.51 and 3628.89, there is a case of the *s*- and *p*-components occupying the same position.

The two following lines have eight components each:

4236.10 λ		
i	$-\Delta\lambda/\lambda^2$	A
6	—1.96 *s*	9×.22
2	—1.53 *s*	7
3	— .65 *p*	3
3	— .22 *p*	1
3	+ .— *p*	.....
3	+ .— *p*	.....
2	+1.53 *s*	.....
6	+1.96 *s*	.....

4083.89 λ		
i	$-\Delta\lambda/\lambda^2$	A
2	(— 1.79) *s*	9×.20
3	—1.19 *s*	6
6	— .83 *p*	4
1+	— .64 *s*	2
2	+ .62 *s*	.....
6	+ .83 *p*	.....
3	+1.19 *s*	.....
1+	(+1.75) *s*	.....

The three following lines are sextets:

4358.91 λ		
i	$-\Delta\lambda/\lambda^2$	A
12	—1.65 *s*	3×.553
15	—1.10 *p*	2
1	— .54 *s*	1
1	+ .54 *s*	.....
15	+1.10 *p*	.....
12	+1.65 *s*	.....

3747.70 λ		
i	$-\Delta\lambda/\lambda^2$	A
6	—1.04	3×.553
6	— .52	2
12	— .46	1
12	+ .46	.....
6	+ .52	.....
6	+1.04	.....

3195.80 λ		
i	$-\Delta\lambda/\lambda^2$	A
8	—1.69 *s*	3×.553
12	—1.11 *p*	2
8	— .55 *s*	1
8	+ .55 *s*	.....
12	+1.11 *p*	.....
8	+1.69 *p*	.....

Here the two lines 4358.91 and 3195.80 are accurate duplicates of each other, which is just the kind of agreement one should anticipate in the terms of a series. Unfortunately no other terms are present within the limits of observations. The *s*-components are of equal intensity and equidistant. They are removed from the zero position one and three times the value ±.55. The *p*-components are double the same value.

In 3747.70, the *s*-components are one and two times the value .52. Direct comparison of the *p*- and *s*-plates shows that the measured difference of the *p*-components and the inner *s*-components is actually present and not an error of observation. The law of

multiple relationship mentioned on pages 7 and 33 still holds for all components, if one goes so far as to take the small difference between these *p*- and inner *s*-components as a unit. The terms are then 7, 8, and 16 times the value ±.065.

The two following quintets could not be measured accurately:

4477.1 λ		
i	$\Delta\lambda/\lambda^2$	A
2	—1.89 *s*	5×.38
...	... *p*	.....
...	... *p*	.....
...	... *p*	.....
2	1.89 *s*	.....

3951.76 λ		
i	$\Delta\lambda/\lambda^2$	B
6	— 1.47 *s*	4×.38
1+	— .383 *p*	1
2	.0 *p*	0
1+	+ .377 *p*	.....
6	+ 1.47 *s*	.....

These *p*-components are not separated in the first order spectrum. As near as could be seen in the second order spectrum, they are the same for both lines, and may be represented by 0 and 1 times the value ±.38. The *p*-components of 4477.10 are five times this value, and in 3951.76, they are four times it. The *s*-components of 3951.76 are diffuse inward, and suggest a pair of lines of value $\Delta\lambda/\lambda^2 = \pm 1.30$ which corresponds to a sevenfold multiple of .19. This only means a doubling of all the previous multiple factors.

The following fourteen lines are quadruplets: 4477.59 is an apparent quadruplet also, but too weak and diffuse to measure.

λ	*i*	$\Delta\lambda/\lambda^2$	A	B
5510.1	2+	± .85 *s*	7×(±.12)	.....
	3	.48 *p*	4	.....
4682.5	12	1.40 *s*	7×(.20)	.....
	10	1.19 *p*	6	.....
4475.90	2	(1.44)	3× .50	.....
	3	.52	1	.....
4375.11	100	1.07	5× .20	.....
	100	.20	1	.....
4177.68	100	1.00	5× .20	D_r *b*
	100	.44	2	D_r *b*
4167.65	20	1.20	6× .20	[1]
	20	.59	3	.....
4128.49	30	1.26 *s*	4× .30	D_r *w*
	30	.29 *p*	1	D_r *w*
4106.60	5	.....	.....	b_o
	3	.40	.....	.....
3982.75	60	1.17	11× .105	D_r [2]
	60	.53	5	.....
3930.84	5	1.21	4× .30	.....
	6-4	.34	1	.....
3833.10	30	1.34	2× .67	.....
	25	.70	1	.....
3552.87	.....	.....	.....	r_o
	5	.895	.....	.....
3448.98	6	1.42	3× .50	[1]
	8	.55	1	.....
3200.44	20	1.53	4× .37	.....
	20	.69	2	.....

Lines 4475.90 and 3448.98 are very similar but do not belong to the same series inasmuch as the blue line is much stronger instead of the reverse. The character of separation is reasonably similar in 4128.49 and 3930.84. The intensities, however, are out of all proportion to the expectations of the series' law; they are what one could expect in two parallel series. It is especially noteworthy

[1] The width of the *s*-components suggests two or more components.

[2] When the *p*- and *s*-components of this strong line are brought into juxtaposition under the microscope, the components are clearly not related in the 1-to-2 ratio. The 12-to-5 ratio, times *a*/11, (see later) seems more probable, but the 11-to-5 ratio here given agrees better with both the old and the new readings.

that the distance of the components of four lines are multiples of the value of ±.20, and the components of two lines multiples of the value ±.30. Hence the components of the six lines are multiples of ±.10.

Although such a division is striking, it may be remarked that if one chooses the multiple value small enough all lines would naturally fall under the multiple proportions within the limits of error. Allowing an error of only .05, and all lines are at once multiples of .1. The same may be said of the before-mentioned multiple value .065, and no importance, within the limits of the present readings, can be attached to such small factors. The value .065, or more accurately .06, appeared as a difference of two components, which difference was actually present when one directly compared the two plates, and the striking feature was that all components of this line were a multiple of this difference. So that, although errors of larger magnitude may arise, the difference is still significant of the fact that the components of lines may stand in the very simple relation of multiples of small separations. In the remaining quadruplets there can be no question of the presence of multiples of .20 and .30. There are no duplicates of the series character present.

The following seventy-four lines are triplets. The intensities of the undisturbed *p*-components are not given. The ratio of the intensity of the *s*- to the *p*-components is usually one to two, though propably in many cases the ratio is nearer two to five.

λ	*i*	$\Delta\lambda/\lambda^2$	B	λ	*i*	$\Delta\lambda/\lambda^2$	B
5663.1	12	±1.10	.....	3967.74	6	± 1.12	.....
30.3	2	(.74)	.....	44.90	7	1.34	*ni*
5582.1	4	.97	.....	06.57	5	1.48	.....
27.8	4–6	1.11	.....	3878.80	15	2.34	*ni* [1]
5497.6	6	1.65	.....	42.00	5	1.22	*ni*
66.7	8	1.08	.....	3788.88	50	1.02	D_7 *w*
03.0	0	.79	.....	82.50	15	1.38	.....
5205.9	10	1.18	.....	76.73	15	1.49	.....
00.6	6	.74	.....	74.51	100	1.15	D_7 *w*
5087.6	10	1.34	.....	10.41	60	1.25	.....
4956.7	2+	.48	.....	3696.90	4	.85	*D*
4900.3	20	1.10	.....	68.67	6	1.38	.....
4883.9	20	1.24	.....	3664.76	20	1.74	D_7 *w*
4855.1	15	.92	.....	45.67	8	1.50	*ni*
4840.1	3	1.50	.....	35.60	5	1.16	.....
4675.01	20	1.20	.....	33.28	50	1.02	D_7
43.88	25	1.02	.....	21.12	15	1.14	.....
4527.98	6	1.32	.....	14.81	1+	(1.24)	.....
27.43	8	1.37	.....	11.19	60	1.30	.....
06.12	15	.92	.....	02.12	40	.62	.....
4465.50	35	1.06	.....	00.90	75	1.48	.....
46.85	3	1.42	.....	3593.11	8	.91	.....
43.83	1+	.....	.....	87.86	5	1.12	.....
22.80	25	.54	.....	85.90	3	.....	r_0
4348.91	8	1.27	.....	49.21	60	1.67	.....
4330.85	2	.84	.....	31.85	5	1.21	.....
09.81	50	1.33	.....	3496.25	12	.62	.....
02.45	8	1.13	.....	68.05	3	.62	.....
4251.39	6	1.09	.....	3372.93	6	1.25	.....
11.85	10	1.21	.....	62.20	10	1.28	.....
04.84	20	1.61	.....	28.11	30	1.08	.....
4174.27	30	1.25	.....	20.10	1+	(1.26)	*D*
43.01	30	.91	D_7 *w*	3242.49	30	1.33	*D*
25.10	20	1.35	.....	16.87	15	1.12	D_a
02.60	50	1.23	.....	03.51	12	.53	.....
4077.54	50	1.26	.....	3173.40	5	1.23	.....
47.81	20	.96	.....	30.20	32	1.25	.....
40.00	15	1.57	D_i				

[1] Y. 3878.47 is not present unless it should be this line, which is scarcely credible. 3878.80 is certainly in satisfactory agreement with the iron line 3878.78. But much stronger iron lines come out as impurities on the plates with much smaller intensities. The separation is unlike any other line of the triplet class in yttrium. The separation of Fe 3878.78 is unknown to the author, but should the separation of the Fe line prove to be some other magnitude, then the present line might safely be regarded an yttrium line, i. e. the magnetic separation may be used to determine the substance of doubtful lines. See also remarks upon Ba 6548.3, 6495.3, and 6484.7, table Ba_4.

Every line in the triplet class is some small multiple of the simple values given with the lines having several components. Many of the lines, however, could safely be different multiples of more than one of these values. It is therefore of no significance to so classify the lines, e. g. a great many triplets have values approximately 1.25. If we assume .05 as a possible error, then any value between 1.20 and 1.30 must be considered. We then may have in these limits multiples of the intervals .18, .20, .30, .43, and .63. Further, if multiple relations hold and one attempts to find series in the triplet class, one is confronted by the fact that triplets of a certain magnitude may belong to quite different groups. As per above illustration, five triplets of separation 1.25 could belong to as many different groups. When we consider farther the small differences in the triplets here noted, it is seen that types exist whose difference in separation is so small that a very small error in observation would place a line in a wrong type. These two considerations indicate that series can be only found, if present at all, in triplets, with great labor. Whereas in other types of separation they are, by Preston's law, at once apparent, if present at all.

VI. Zirconium

The two following lines have eleven components each:

λ=3573.30		
i	$\Delta\lambda/\lambda^2$	A
5	−2.24 *s*	6×.37
3	−1.50 *s*	4
3	−1.11 *p*	3
1	− .74 *s*	2
6	− .34 *p*	1
1	— *s*	0
6	+ .34 *p*	.....
1	.....	.....
3	+1.03 *p*	.....
3	+1.50 *s*	.....
?	+ — *s*	b_0

λ=3272.39		
i	$\Delta\lambda/\lambda^2$	A
5	−2.26 *s*	6×.37
2	−1.54 *s*	4
3	−1.11 *p*	3
1	— *s*	2
5	− .37 *p*	1
1	— *s*	0
5	+ .37 *p*	.....
1	+ — *s*	.....
3	+1.14 *p*	.....
2	+1.50 *s*	.....
5	+2.26 *s*	.....

These two lines are certainly duplicates. The *s*-components are even multiples of .37 and the *p*-components odd multiples of the same value. A common difference of .74 occurs six times in each of these lines.

The following two lines have nine components each:

λ=3780.78		
i	$\Delta\lambda/\lambda^2$	A
6	−2.17 *s*	5×.43
2	−1.69 *s*	4
2	− .86 *p*	2
3	− .42 *p*	1
3	.0 *p*	0
3	+ .48 *p*	.....
1+	+ .90 *p*	.....
2	+1.69 *s*	.....
6	+2.17 *s*	.....

λ=3921.99		
i	$\Delta\lambda/\lambda^2$	A
4	−2.14 *s*	5×.43
1	.....	.....
2	− .92 *p*	2
3	− .44 *p*	1
3	.0 *p*	0
2	+ .46 *p*	.....
1+	+ .91 *p*	.....
1	.....	.....
4	−2.14 *s*	.....

These lines are duplicates and the separations are multiples of the value .43.

The six following lines have eight components each:

λ=4410.80		
i	$\Delta\lambda/\lambda^2$	A
2	−2.14 *s*	.....
4	−1.57 *s*	.....
2	−1.04 *s*	.....
15	− .89 *p*	.....
15	− .89 *p*	9×10
2	− .98 *s*	10
4	− 1.57 *s*	16
2	+ 2.18 *s*	22

λ=4268.22		
i	$\Delta\lambda/\lambda^2$	A
10	−2.16 *s*	4×.54
8	−1.09 *p*	2
6	−1.07 *s*	2
3 *s*	.0	.....
12 *p*	.0	.....
8	1.07 *p*	.....
6	1.12 *s*	.....
10	2.16 *s*	.....

λ=4214.05		
i	$\Delta\lambda/\lambda^2$	A
6	−1.76 *s*	3×.60
6	−1.21 *p*	2
2	−1.17 *s*	2
10 *p*	.0	0
1 *s*	.0	0
6	+1.07 *p*	.....
2	+1.13 *s*	.....
6	+1.75 *s*	.....

λ=4027.4		
i	Δλ/λ²	A
2	—1 94 *s*	7×.27
3	—1.36 *s*	5
8	—1.09 *p*	4
2	— .75 *s*	3
2	+ .87 *s*	.....
8	+1.09 *p*	.....
3	+1.37 *s*	.....
2	+1.94 *s*	.....

λ=3764.6		
i	Δλ/λ²	A
2	1.82 *s*	7×.27
3	1.35 *s*	5
8	1.08 *p*	4
2	.86 *s*	3
1+	.86 *s*	.....
8	1.08 *p*	.....
3	1.35 *s*	.....
1+	1.89 *s*	.....

λ=3459.1		
i	Δλ/λ²	A
3	—2.20 *s*	22×.10
4	—1.51 *s*	15
8	—1.17 *p*	12
2	— .73 *s*	7
3	+ .68 *s*	7
8	+1.17 *p*	12
4	+1.54 *s*	15
1+	+2.28 *s*	23

4027.4 and 3764.6 are probably duplicates.

The following seven lines have seven components each:

λ=4457.71		
i	Δλ/λ²	A
2	—2.31 *s*	.....
10	—1.46 *s*	.....
10	—1.33 *p*	.....
2	.0 *p*	[1]
10	+1.46 *s*	.....
10	+1.50 *p*	.....
2	+2.31 *s*	.....

λ=4258.31		
i	Δλ/λ²	A
4	— 1.53 *s*	6×.26
6	— 1.37 *p*	5 (?)
2	— [.82] *p*	3
10	.0 *s*	0
2	+ [.82] *p*	8×.10
6	+ 1.37 *p*	14
4	+ 1.48 *s*	15

λ=4171.65		
i	Δλ/λ²	A
8	—1.48 *s*	6×.25
8	—1.26 *p*	5
6	— .26 *s*	1
6	.0 *p*	0[2]
6	+ .26 *s*	.....
4	+1.24 *p*	.....
3	+1.50 *s*	12(?)(a)
2	[+3.02 *s*]	.....

λ=4093.32		
i	Δλ/λ²	A
1+	—1.77 *s*	6×.305(?)
2	— .90 *p*	3
2	— .67 *s*	2(?)
3	.00 *p*	0
3	+ .66 *s*	7×.10
2	+ .93 *p*	9
1+	+1.78 *s*	18

λ=4068.9		
i	Δλ/λ²	A
2	—1.55 *s*	.....
2	—1.16 *p*	.....
2	— .49 *s*	.....
6	.0 *p*	[3]
2	+ .49 *s*	.....
2	+ .83 *p*	.....
2	+1.55 *s*	.....

[1] The weak middle *p*-component is unsymmetrical.

[2] The line is unsymmetrical in intensity and has a possible extra component (*a*) upon the violet side. This line may be also a foreign line, as it does not appear upon the plates with weaker fields.

[3] The outer weak pair of *p*-components is not symmetrical.

λ=4055.2

i	$\Delta\lambda/\lambda^2$	A
2	—1.11 *s*	2×.53
6	— .56 *p*	1
8	— .53 *s*	1
8	.0 *p*	0
4	+ .49 *p*	.....
8	+ .53 *s*	.....
2	+1.11 *s*	.....

λ=3868.01

i	$\Delta\lambda/\lambda^2$	A
1	—1.71 *s*	4×.43
8	—1.25 *p*	3
2	— .88 *s*	2
3	.0 *p*	0
2	+ .88 *s*	.....
8	+1.25 *p*	.....
1+	+1.68 *s*	....

The following sixteen lines have six components each:

λ=4590.81

i	$\Delta\lambda/\lambda^2$	A
2	—1.74 *s*	3×.55
6	—1.11 *p*	2
2	— .55 *s*	1
2	+ .55 *s*	.....
5	+1.11 *p*	.....
2	+1.67 *s*	.....

λ=4438.23

i	$\Delta\lambda/\lambda^2$	A
2	—1.57 *s*	3×.52
6	—1.07 *p*	2
2	— .57 *s*	1
2	+ .55 *s*	6(?)×.10
6	+1.07 *p*	11
2	+1.60 *s*	16

λ=4431.70

i	$\Delta\lambda/\lambda^2$	A
6	—2.73 *s*	5×.55
6	—1.67 *s*	3
12	—1.12 *p*	2
12	+1.12 *p*	.....
6	+1.67 *s*	.....
6	+2.74 *s*	.....

λ=4403.67

i	$\Delta\lambda/\lambda^2$	A
5	—2.11 *s*	8×.26
15	— .76 *p*	3
12	— .48 *s*	2
12	+ .48 *s*	.....
15	+ .76 *p*	.....
5	+2.11 *s*	.....

λ=4110.29

i	$\Delta\lambda/\lambda^2$	A
6	—1.54 *s*	4×.39
8	—1.17 *p*	3
1+	— .77 *s*	2
1+	+ .77 *s*	.....
8	+1.17 *p*	.....
6	+1.54 *p*	.....

λ=4040.49

i	$\Delta\lambda/\lambda^2$	A
2	—2.08 *s*	8×.26
10	— .77 *p*	3
8	— .51 *s*	2
8	+ .51 *s*	.....
10	+ .77 *p*	.....
2	+2.12 *s*	.....

λ=3554.31

i	$\Delta\lambda/\lambda^2$	A
2	—2.67 s	6(?)×.43
6	—1.72 s	4
10	— .42 p	1
10	+ .42 p	4×.10
6	+1.72 s	17
2	+2.67 s	27

λ=3507.80

i	$\Delta\lambda/\lambda^2$	A
6	— 2.78 s	.....
1+	—[1.05] s	.....
5	— .90 p	.....
5	+ .90 p	.....
1+	+[1.08] s	.....
6	+ 2.75 s	.....

λ=3498.00

i	$\Delta\lambda/\lambda^2$	A
1+	—2.51 s	5×.50
6	—1.48 s	3
3	— .44 p	1(?)
2	+ .44 p	.....
6	+1.48 s	.....
1+	+2.45 s	.....

λ=3483.70

i	$\Delta\lambda/\lambda^2$	A
4	—1.82 s	5×.36
16	—1.08 s	3
20	— .38 p	1
20	+ .38 p	.....
16	+1.08 s	.....
4	+1.80 p	.....

λ=3482.96

i	$\Delta\lambda/\lambda^2$	A
4	—1.10 s	3×.36
4	— .72 p	2
4	— .70 s	2
4	+ .70 s	.....
6	+ .72 p	.....
4	+1.10 s	.....

λ=3396.51

i	$\Delta\lambda/\lambda^2$	A
2	—1.06 p	3×.34
6	— .67 s	2
6	— .33 p	1
6	+ .33 p	.....
6	+ .67 s	.....
2	+ .95 p	.....

λ=3323.21

i	$\Delta\lambda/\lambda^2$	A
8	— 1.91 s	5×.38
2	—[1.15] s	3
12	— .41 p	1
12	+ .41 p	.....
2	+[1.15] s	.....
8	+ 1.91 s	.....

λ=3318.70

i	$\Delta\lambda/\lambda^2$	A
...	—[1.53] s	.....
1+	— [.72] s	.....
5	— .69 p	.....
5	+ .69 p	.....
1+	+ [.74] s	.....
5	+ 1.45 s	.....

λ=3313.89

i	$\Delta\lambda/\lambda^2$	A
1+	—[2.39] s	6×.40
8	— 1.69 s	4
6	— .40 p	1
6	+ .40 p	4×.10
8	+ 1.68 s	17
1+	+[2.39] s	24

λ=3155.90

i	$\Delta\lambda/\lambda^2$	A
2	—2.10 s	8×.26
6	— .77 p	3
8	— .51 s	2
8	+ .51 s	.....
6	+ .77 p	.....
2	+2.10 s	.....

The eleven following lines have five components each:

λ=5350.5		
i	$\Delta\lambda/\lambda^2$	A
8	−1.42 s	3×.48
4	− .49 p	1
2	.0 s	0
3	+ .49 p	.....
4	+1.44 s	.....

λ=4236.23		
i	$\Delta\lambda/\lambda^2$	A
8	− 1.47 s	.....
2	.66 p	.....
4	.0 p	.....
2	+ .66 p	.....
8	+ 1.47 s	.....
2	[2.20]? s	.....

λ=4187.30		
i	$\Delta\lambda/\lambda^2$	A
5	−2.92 s	9×.32
4	−1.26 p	4
8	.0 p	0
4	+1.24 p	.....
5	+2.92 s	.....

λ=4061.70		
i	$\Delta\lambda/\lambda^2$	A
10	−1.79 s	7×.26
4	− .52 p	2
6	.0 p	0
3	+ .51 p	.....
10	+1.79 p	.....

λ=4046.30		
i	$\Delta\lambda/\lambda^2$	A
2	−1.65 s	2×.83
4	− .84 p	1
8	.0 s	.....
4	... p	.....
2	+1.65 s	.....

λ=3501.50		
i	$\Delta\lambda/\lambda^2$	A
6	− 2.00 s	3×.67
4	− [.70] p	1
2	.0 s	0
2	+ [.70] p	7×.10
4	+ 2.00 s	20

λ=3471.31		
i	$\Delta\lambda/\lambda^2$	A
6	− .87 s	9×.10
12	− .30 p	3
6	+ .30 p	3
4	+ .49 s	5
2	+1.20 s	12

λ=3432.59		
i	$\Delta\lambda/\lambda^2$	A
2	−1.71 s	.....
8	− .94 p	.....
15	.0 s	.....
8	+ .94 p	.....
2	+1.71 s	.....

λ=3376.42		
i	$\Delta\lambda/\lambda^2$	A
2	−1.10 p	3×.37
2	− .38 p	1
10	.0 s	0
2	+ .38 p	.....
1+	+1.17 p	.....

λ=3271.30		
i	Δλ/λ²	A
2	—[1.38] *s*	.....
8	— .63 *p*	.....
12	.0 *s*	.....
8	+ .63 *p*	.....
2	+[1.38] *s*	.....

λ=3099.42		
i	Δλ/λ²	A
1+	.....	.....
5	1.31	.....
3	.0	.....
5	1.31	.....
1+	.....	.....

Line 5350.5 is unsymmetrical in intensity. The line 3471.31 is unsymmetrical in intensity as well as in separation. Duplicates are not present.

The following eighty-nine lines have four components each:

λ	*i*	Δλ/λ²	A	λ	*i*	Δλ/λ²	A
4582.50	3	±1.02 *s*	2×.51	4199.30	15	±1.47 *s*	3×.48
	2	.52 *p*	1		12	.46 *p*	1
4456.50	30	.83	3×.28	4077.27	.....	.....	.....
	30	.56	2		5	.38	.....
4455.64	2	1.20	3×.42	4071.30	8	1.68	.....
	2	.84	2		10	.58	.....
4455.08	12	1.21	3×.42	4043.77	15	1.48	3×.50
	15	.46	1		15	.54	1
4429.28	3	1.58	3×.51	4036.10	20	1 30	4×.33
	5, 3	.49	1		20	.67	2
4420 70	15	1.82	.....	4034.30	6	1.33	4×.33
	15	.71	.....		4	.32	1
4414 80	20	1.58	5× 32	4031.57	2	1.66	4×.42
	20	.63	2		3	.41	1
4413.28	12	1.76	.....	4025.16	25	[1.39]	.....
	15	.53	.....		25	.73	.....
4394.73	.....	.....	.....	4024.20	25	1.54	3×.51
	7, 5	.60	.....		20	.55	1
4349.10	2	[1.23]	3×.40	4017.16	6	1.13	3×.42
	2	.77	2		8	.43	1
4312.47	4	1.27	3×.42	4004.51	2	1.00	5×.20
	4	.41	1		5	.79	4
4309.20	8	1.25	3×.42	4003.28	8, 10	2.05	7×.29
	8	.85	2		6, 4	.29	1
4256.66	6	1.50	6×.25	3999.18	100	1.17	3×.42(?)
	6, 4	.27	1		100	.85	2
4224.42	.....	.....	.....	3973.68	20	1.14	2×.57
	5	1.08	.....		15	.57	1

λ	i	$\Delta\lambda/\lambda^2$	A	λ	i	$\Delta\lambda/\lambda^2$	A
3934.99	20	±1.14 *s*	2×.57	3470.10	2	±[1.59] *s*	6×.27
	15	.57 *p*	1		4	1.33 *p*	5
3916.16	25	.85	4×.22	3460.10	2, 3	[1.22]	.....
	20	.24	1		3	.72	2
3894.00	5, 3	[.89]	4×.22	3454.71	3	.61	1×.60
	2, 4	[67]	3		4	1.18	2
3891.61	25	1.28	13×.10	3440.54	5	0.+	*p*>*s*
	25	.70	7		6	1.11	.....
3890.58	30	1.29	4×.30(?)	3437.30	25	1.42	2×.71
	30	.29	1		25	.72	1
3817.80	30, 20	.81	.....	3434.08	5	1.58	4×.39
	20	.35	.....		10	1.19	3
3782.45	3, 5	[.72]	.....	3424.97	4	.93	2×.42(?)
	7	.73	.....		10, 8	.41	1
3674.98	50	.63	3×.21	3413.55	2	[1.55]	13×.12
	50	.42	2		4	1.43	12
3663.81	20	1.27	3×.42	3394.96	4	1.76	.....
	15, 12	.42	1		4	.94	.....
3650 90	6	1.49	2×.75	3378.47	4	.....	.....
	5	.76	1		4	1.43	.....
3634.33	10	1.36	4×.34	3377.61	8	1.45	.....
	10, 6	.35	1		6, 4	.61	.....
3629.29	2	1.09	.....	3369.42	4	1.64	4×.42
	2	.71	.....		4	.44	1
3624.10	25	1.16	.....	3364.00	8	1.33	3×.42
	25, 20	.33	.....		8	.84	2
3613.30	40	[1.03]	.....	3357.42	25, 20	.59	3×.20
	30	.95	.....		25, 20	.40	2
3612.61	3	.59	.....	3338.07	4	1.98	.....
	3	.41	.....		2	1.17	.....
3588.15	20	.58	2×.29	3310.10	4	.....	.....
	20	.29	1		4	1.45	.....
3578.40	20	2.01	7×.29	3296.59	6	1.49	3×.50
	20, 15	.28	1		4	[.47]	1
3569.03	2	[——]	.....	3287.46	2	.....	.....
	2	.47	.....		2	.54	.....
3568.32	6	1.17	4×.30	3284.89	20	.65	2×.33
	6	.90	3		20	.35	1
3552.20	50	1 27	3×.42	3274.14	4	1.46	2×.75
	50	.77	2 (?)		4	.78	1
3530.17	6	1.21	3×.42	3264.96	4	1.46	3×.50
	5, 4	.45	1		4	[.51]	1
3514.79	4	1.23	3×.42	3229.00	15	1.36	3×.45
	4	.84	2		15, 12	.46	1
3505.67	60	1.67	4×.42	3213.01	4	1.10	2×.53(?)
	60	.41	1		4	.50	1
3485.48	10	1.74	.....	3182.15	.....	.....	.....
	8	1 11	.....		5	.67	.....
3480.59	15	1.57	3×.51(?)	3181.79	8	1.56	.....
	15	.98	2		8	1.45	.....
3478.98	2	[.87]	.....	3178.30	8	1.65	4×.42
	6	.50	.....		8	.87	2

λ	*i*	$\Delta\lambda/\lambda^2$	A	λ	*i*	$\Delta\lambda/\lambda^2$	A
3166.48	.....	.00 *s*	.....	3111.09	4	±1.46 *s*	.....
	6	.61 *p*	.....		6	.55 *p*	.....
3165.68	4	1.60	.....	3095.29	8	1.25	5×.25
	4	.49	.....		8	.76	3
3164.54	12	1.09	11×.10	3031.04	3	.....	.....
	6	.40	4		2	.66	.....
3157.19	6	1.16	3×.42(?)				
	3	.81	2				

A simple multiple relationship between the components of a line appears for a great majority of these quadruplets. The interval .42 repeats itself very often in many lines, but the factors by which this interval must be multiplied in order to obtain the separation of the lines are different, so that few duplicates occur. Some of these lines are evidently pairs. A well-defined line, 4455.08, the distance of whose components are three and one times the value .42, is accompanied on the red side by a weak line, the separation of whose components is three and two times the same value .42. The difference in vibration-frequency of these two lines is 2.62. Line 3663.81 is a duplicate of 4455.08, but is not accompanied by a weak line. There are two pairs of lines whose separations are in the ratio of three to one for the pair of greater wave-length and in the ratio of three to two for the pair of shorter wave-length. This first pair is 4312.47 and 4309.20, with a vibration difference of 12.21. The second pair is 3530.17 and 3514, with a vibration difference of 123.95. One can associate with the last pair the very strong line 3505.67, whose components have the separation of four and one times the value .42. There appears also another pair whose components stand in the ratio of three to one and four to one times the value .42. These lines are 3364 and 3369.42 which give a vibration difference 47.82. In the lines 3164.54 and 3157.19 there exist possibly the ratios of three to one and three to two times the value .42 respectively. The vibration difference is 73.46. These differences in vibration have no uniformity such as one expects in corresponding terms of similar series. It is possible that the line 3999.18, the strongest line of the spectrum, and

552.20 belong to the three-to-two multiples of .42, but this value does not repeat itself in other strong lines.

The following 410 lines are triplets:

λ	i	$\Delta\lambda/\lambda^2$	λ	i	$\Delta\lambda/\lambda^2$
5665.4	2, 4	±1.25	4602.80	10, 20	±1.27
36.0	1+, 3	[.83]	4584.44	1+, 3	[1.02]
5504.7	6, 12	.59	76.37	1+, 3	.71
02.5	6, 12	.99	75.78	15, 30	.91
5492.1	5, 10	.83	74.78	6, 12	.94
69.8	8, 16	.56	65.68	3, 6	.95
65.6	1+, 3	[1.01]	54 29	8, 16	1.10
53.8	6, 12	.66	53.25	3, 6	.54
46.0	6, 10	.76	42.49	12, 25	1.59
00.7	8, 15	.68	40.19	2, 6	[1.31]
5385.6	8, 15	1.24	36.00	10, 20	.94
57.5	8, 15	.66	23.33	3, 6	1.35
5191.7	10, 20	1.30	07.39	8, 15	1.10
43.5	6, 12, 8	.62	4497.27	30, 60	.94
38.4	10, 20	.62	94.78	15, 30	1.20
14.2	2, 4	[.90]	85.71	2, 4	[2.35]
5079.6	1+, 3	[.62]	82.72	4, 8	1.24
66.9	2, 5	.95	81.00	5, 10	1.28
4839.3	2, 5, 4	.75	70.80	10, 20	1.08
28.5	4, 6, 3	.70	68.98	3, 8	1.29
24.8	4, 8	1.27	67.12	6, 12	1.53
16.1	12, 24	.78	61.50	8, 15	1.18
10.0	4, 8	1.19	60.57	2, 4	1.27
06.5	4, 8	1.27	50.71	5, 10	2.73
4789.3	3, 6	.95	43.31	30, 60	1.07
85.6	6, 12	.99	29.55	1+, 3	[1.61]
72.1	15, 30	.90	27.44	8, 15	1.09
62.8	2, 4	1.13	04.98	6, 12	1.44
39.6	20, 4	1.04	4383.90	6, 12	1.31
19.3	8, 16	1.17	80.12	50, 100	1.15
12.2	3, 6	1.31	73.28	1+, 3	[2.32]
10.3	25, 50	1.18	71.27	20, 40	1.18
03.3	2, 4	[1.41]	66.69	15, 30	1.22
4688.7	5, 8	1.14	61.01	6, 12	1.62
88.0	30, 60	1.32	60.05	50, 100	1.26
85.5	3, 8	1.11	58.95	5, 10	1.32
83.6	3, 16	1.19	48.15	50, 100	1.12
67.4	1+, 3	[1.24]	46.70	5, 10	.84
62.0	3, 8	1.05	43.59	1+, 3	[1.23]
57.9	4, 8	1.18	43.23	2, 4	1.06
45.01	6, 12	.76	41.40	5, 10	1.36
31.20	15, 30	1.09	39.80	3, 6	1.86
29.33	6, 12	1.20	37.90	8, 15	1.34
26.62	8, 15	1.21	33.59	15, 30	1.24
14.20	6, 12	1.03	24.24	8, 15	1.06
04.59	3, 6	2.34	19.24	4, 8	1.24

λ	*i*	Δλ/λ²	λ	*i*	Δλ/λ²
4317.57	12, 25	±1.26	4152.87	15, 30	±1.59
09.99	4, 8	1.68	51.23	20, 50	1.39
04.92	8, 15	1.45	49.43	150, 300	1.27
03.12	20, 40	1.67	47.53	6, 10	1.20
02.80	2, 4	1.67	40.70	5, 10	1.86
02.10	8, 16	.88	38.02	6, 10	.33
4297.00	12, 25	1.50	35.85	10, 20	1.50
95.08	25, 50	1.69	34.46	4, 8	[1.66]
93.41	15, 30	.75	21.68	12, 20	1.70
91.54	5, 10	1.63	08.60	10, 20	1.67
91.38	4, 8	1.62	07.75	6, 10	.99
86.78	6, 12	.76	4099.50	4, 6	[1.89]
82.53	8, 15	1.82	96.80	15, 30	.90
77.60	6, 12	1.42	94.42	6, 10	1.46
76.91	6, 12	1.67	91.00	6, 10	.66
74.95	6, 12	1.20	90.70	30, 50	.91
65.17	4, 8	1.52	89.98	8, 15	1.00
61.65	6, 12	1.11	87.88	5, 10	1.74
61.42	2, 5	[.90]	84.50	8, 15	1.18
53.76	8, 15	2.14	83.29	6, 12	1.58
43.74	2, 4	[1.44]	81 48	30, 50	1.33
41.98	20, 40	1.27	78.49	6, 12, 8	1.66
41.50	15, 30	1.11	76.70	8, 15	1.26
39.58	30, 20	1.49	75.09	12, 20	1.67
37.57	4, 8	2.18	72.90	40, 75	1.27
36.81	6, 12	[.85]	64.38	25, 50	1.05
34.89	8, 16	1.25	60.78	6, 10	1.03
31.88	10, 20	1.34	58.78	4, 8	.88
27.98	40, 60	1.51	55.90	15, 25	1.32
22.67	4, 8	.70	54.60	2, 4	.56
18.60	4, 8	1.86	50.52	30, 50	1.37
15.95	4, 8	.84	48 90	30, 50	1.34
15.50	6, 12	1.42	45.90	25, 40	.61
12.17	25, 50	.62	42.49	8, 15	[1.38]
11.50	4, 8	1.57	41.90	10, 20	[1.64]
10.87	10, 20	1.57	30.87	2, 4	.96
09.21	50, 100	.97	29.88	30, 50	1.77
01.69	20, 50	1.69	29.17	6, 12	1.74
4196.32	8, 15	1.35	24.70	20, 49	[1.39]
95.00	10, 20	1.84	18 60	15, 30	1.02
94.66	2, 4	1.20	12.48	8, 15	.94
92.03	4, 8	[1.14]	07.80	10, 20	1.08
91.75	3, 5	.77	05.02	6, 12	[1.57]
87.80	20, 30	1.60	3991.31	100, 150	1.08
86.89	20, 30	1.63	89.65	10, 15	1.33
83.51	10, 20	1.77	84.90	10, 20	1.57
80.08	25, 40	1.40	81.79	20, 40	1.35
68.90	6, 10	1.28	78.86	6, 12	1.47
66.60	15, 30	1.50	78.35	2, 4	[1.04]
61.48	30, 50	.71	77.60	10, 20	1 06
53.96	8, 15	2.38	75.47	12, 30	1.22

λ	i	$\Delta\lambda/\lambda^2$	λ	i	$\Delta\lambda/\lambda^2$
3968.39	10, 20	±1.16	3714.80	6, 10	±2.05
66.80	10, 20	1.69	09.51	40, 75	1.20
61.71	12, 25	1.29	3698.41	75, 125	1.26
58.39	75, 125	.98	97.70	20, 40	1.28
56.90	3, 6	.62	79.80	1+, 3	[1.37]
41.75	10, 15, 8	1.01	79.10	15, 25	1.24
36.28	12, 25	1.88	72.81	3, 5	2.85
31.55	2, 4	1.66	71.49	25, 40	.99
29.71	30, 50	1.14	68.69	15, 25	1.73
26.96	3, 6	1.19	67.28	6, 12	1.32
20.35	2, 4	[1.67]	62.32	10, 20	.95
18.25	1+, 3	[.50]	61.10	3, 5	.57
16.80	6, 12	1.42	55.72	8, 15	1.74
14.59	10, 20	.94	53.61	2, 4	1.17
00.08	2, 4	[1.65]	51.65	2, 4	[1.44]
3897.82	5, 10	1.43	36.69	15, 25	1.69
96.73	10, 20	1.18	33.70	12, 20	1.29
92.19	6, 12	1.21	30.30	20, 40	1.89
85.61	12, 25	1.11	19.22	6, 12	.83
79.21	10, 20	1.35	12.13	30, 50	1.44
77.78	12, 25	1.10	07.60	15, 38	1.48
64.57	25, 50	1.32	01.40	40, 75	1.24
64.12	30, 50	1.20	00.11	10, 15	1.11
49.48	15, 25	1.35	3588.96	3, 6	1.71
47.22	12, 20	1.28	88.51	12, 20	1.66
43.30	25, 50	1.05	86.42	15, 30	.75
36.98	75, 150	1.24	77.74	5, 8	1.16
36.18	25, 50	.76	77.10	50, 75	1.39
22.60	15, 30	.85	75.89	15, 25	1.35
00.91	5, 10	1.44	72.70	75, 125	1.04
3796.71	30, 50	1.80	70.25	6, 12	1.11
92.55	10, 20	1.38	66.30	15, 25	1.23
91.60	15, 25	1.52	65.61	10, 20	.93
86.80	4, 8	1.34	59.23	6, 10	.80
82.99	3, 6	[.92]	56.89	75, 125	.94
82.45	3, 6	[.72]	50.67	8, 20	1.40
72.29	10, 20	1.55	49.73	20, 30	1.60
66.99	50, 100	1.15	47.90	20, 30	1.39
59.30	3, 6	1.27	42.87	40, 60	1.23
57.99	12, 25	1 31	39.17	5, 8	1.77
51.85	75, 150	1.02	37.11	10, 15	1.24
50.84	10, 20	1.30	35.30	6, 10	1.28
46.18	50, 100	1.19	33.35	12, 20	1.83
38.32	6, 10	1.47	31.00	10, 20	1.17
37.54	4, 8	1.03	27.58	15, 25	1.19
35.15	12, 20	1 52	26.00	25, 40	1.70
31.50	30, 50	.97	21.01	12, 20	1.93
29.98	8, 15	1.87	19.72	25, 40	1.19
27.90	15, 20	1.60	10.61	8, 12	1.72
19.02	8, 12	1.59	09.48	20, 30	1.23
14.99	30, 50	1.46	06.23	10, 15	1.89

λ	*i*	$\Delta\lambda/\lambda^2$	λ	*i*	$\Delta\lambda/\lambda^2$
3705.88	75, 125	±[1.49]	3344.00	1+, 3	±1.18
00.33	5, 10	1.04	42.10	1+, 3	1.09
3499.78	20, 30	1.64	27.05	15, 12	1.26
96.40	60, 100	1.10	19.19	8, 6	1.63
83.17	3, 5	[1.38]	11.53	3, 3	1.73
81.36	50, 100	1.19	06.48	30, 20	1.11
79.58	10, 15	[1.07]	05.33	25, 25	1.39
78.68	8, 12	1.63	02.89	8, 6	1.43
78.45	6, 10	1.74	3288.99	12, 10	1.92
63.23	30, 50	1.05	86.01	8, 8	1.79
61.22	6, 10	1.38	85.89	2, 2	1.78
57.75	25, 30	1.33	83.09	10, 8	1.32
57.30	2, 3	[1.98]	80.92	2, 2	.69
56.02	3, 5	.59	75.28	2, 2	1.24
47.50	10, 15	.66	74.14	4, 3	1.46
46.71	5, 8	.88	73.22	40, 50	1.45
43.69	10, 15	.71	69.81	4, 4	1.38
40.70	2, 3	[1.35]	60.24	4, 4	1.42
38.39	100, 150	1.25	50.62	10, 4	1.98
30.73	40, 40	1.32	47.72	6, 6	1.14
27.23	1+, 3	[1.76]	42.32	3, 3	1.38
24.00	2, 4	1.49	41.26	20, 20	1.14
19.76	3, 6	.81	36.75	3, 4	1.68
19.22	6, 6	2.02	34.24	10, 12	1.19
14.87	15, 15	.86	31.89	40, 50	1.71
10.44	30, 25	1.24	29.00	15, 20	1.37
08.23	12, 10	.52	22.61	8, 10	1.28
05.03	25, 20	.98	14.35	40, 50	1.70
03.89	12, 10	.60	12.17	8, 12	1.12
03.10	10, 8	1.69	3192.11	8, 12	1.27
3399.95	1+, 3	[1.61]	91 31	4, 6	.93
99.51	10, 15	.63	83.08	30, 40	1.14
96.81	2, 3	1.06	61.12	2, 4	.94
94.96	3, 5	1.76	57.94	4, 8	.96
93.36	15, 12	1.62	38.88	20, 30	1.14
92.28	75, 75	1.26	37.08	2, 4	[1.43]
88.49	40, 40	1.63	33.70	15, 20	1.17
88.07	40, 40	.75	32.22	2, 4	[1.09]
83.90	2, 4	.89	29.96	20, 30	1.01
74.84	30, 15	1.50	29.38	20, 30	.95
73.61	15, 8	1.04	26.10	15, 20	.55
73.05	4, 6	1 05	25.33	1+, 3	[1.03]
70.73	4, 6	1.52	20.90	4, 8	1.32
61.35	4, 6	1.15	11.09	6, 10	1.46
60.61	4, 6	1 50	06.79	25, 40	1.32
60.18	12, 10	1.03	3055.00	15, 25	1.20
56.28	25, 20	1.73	36.57	8, 12	1.55
54.59	12, 10	1.48	29.63	6, 10	1.23
49.59	4, 4	1.12	28.18	10, 15	1.00
49.23	2, 2	1.02	20.53	5, 8	1.29
45.00	15, 15	1.14	19.96	1+, 3	1.19

λ	*i*	$\Delta\lambda/\lambda^2$	λ	*i*	$\Delta\lambda/\lambda^2$
3011 88	4, 6	±1.11	2978.21	4, 6	±1.55
03.88	6, 10	1.37	69.77	6, 10	.56
2985.53	4, 6	.75	69.10	6, 10	1.58
81.18	3, 5	[1.60]	62.81	5, 10	1.05
79.35	2, 4	1.29	55.92	8, 12	1.11

The zirconium triplets have not been thoroughly investigated for series. Such an investigation of so many lines would require a long time. For reasons given in the discussion of yttrium triplets, and here even more pronounced, the application of Preston's law is neither immediate nor direct, and the necessary work would be enormous. However, I have investigated the separations .59±.07, .76±.07, .84±.08, 1.25±.07, 1.66±.07, 1.82±.09, and 2.34.

The following twenty-nine lines are not apparently separated:

λ	*i*	B	λ	*i*	B
5508.5	8	*D*	4030.26	8	[3]
5485.4	8	.....	3989.27	2	*ni*
5136.0	10	.....	00.71	15	[4]
4851.8	6	*b D*	3781.80	8	[5]*D*
15.4	4	*D*	24.94	5	.....
4400.58	6	*D* [1]	06.79	5	*D* wide
4273.80	12	[2]	3657.01	2	[6]
66.96	4	.....	3549.90	5	.....
50.89	1+	*D* wide	3431.71	8	[2]
40.59	20	*A*	3362.87	8	[4]
13.45	5	*A*	3354.08	3	*ni* [7]
4181.18	8	.....	3314.70	15	[2]
40.18	5	*D* somewhat	3131.23	1+	*D* wide
28.08	12	*A*	3013.44	1+	[8]
4044.80	20	*A*			

[1] Possibly there is a weak pair of external components.
[2] *s*-component is a strong center with a broad background of diffusion on both sides. *p*-component wide.
[3] *p*-component broadened.
[4] Broad line for the *s*-component, sharp and strong on the edges and weak in the center; *p*-component sharp.
[5] The real components are probably overlapped by a carbon band line.
[6] Possibly separated but too weak.
[7] Not identified. It can scarcely be Exner and Hascek's line 3353.80.
[8] Too weak and diffuse. It is possibly a doublet, but too far in violet for analysis.

The most of these lines are, as the footnotes indicate, probably of some other types, whose components have too small a separation and are too diffuse to permit of an analysis. The lines designated *A* are certainly not separated, and those undesignated in column B are probably not separated. The lines designated [2] in remarks are very curious and probably identical. The lines 5736.0, 4240.39, 3900.71 would form a series, but the next term, about 3750, and the following terms are not present.

VII. Osmium

λ	*i*	Δλ/λ²	λ	*i*	Δλ/λ²
4420.63	25	±1.20 *s*	3882.03	7	±1.65
.....	25	.70 *p*	3794.05	4	1.29
4395.05	4	1.49	90.28	6	1.83
28.84	4	1.19	82.37	12	1.82
11.15	6	.94	52.71	20	1.63
4294.17	8	1.18	3598.26	2+	[1.55]
		.47	3561.04	8	1.35
61.01	20	1.95	59.96	4	1.58
12.02	12	1.72	28.76	5	1.61
4175.74	5	1.49	04.83	4	1.55
73.42	10	1.44	3402.03	3	1.50
35.95	15	1.97	3301.75	12	1.68
12.17	10	1.65	3268.09	6	1 61
4091.99	3	1.81	3262.44	4	1.37
66.90	8	1.54	3156.38	4	1.62
3977.38	6	1.54	3058.77	8	1.55
63.79	8	1.59	2909.19	10	1.40

Osmium was selected as a substance which, it was hoped, would give, with some types, repetitions throughout the spectrum, without having the confusion which arises from many lines of nearly the same separation. In this respect the substance was a disappointment. All the lines except one weak quadruplet are triplets, and the separation of these varies from .70 to 1.97. There are a number of pairs of similar separation, but not enough representatives for a series. The spectral lines were never strong. Therefore, a long exposure in the magnetic field was required. A characteristic of the components is their great sharpness. The un-

recorded p-components have very uniformly double the intensity of the s-components.

VIII. Comparison of Substances

It is desirable to compare the substances discussed above with lines whose separation gives series. The two yttrium lines, 4395.91 and 3195.80, which are accurate duplicates such as one expects in series, are like six of the nine components of mercury, 5461 of the second adjacent series. The quadruplet 4167.65 is like four components of the barium sextet 5854. The quadruplet 3982.75 is like four components of the thirteen-component mercury line 3663.5. The remaining components in these three lines are not absent because of weakness, since these lines are not weak lines. The two eleven-component zircon lines have two pairs of components similar to two pairs of components in the nine-component mercury line 5461. They have two other pairs of components represented in the barium principal series greater wave-length line 4934. Their one remaining pair of components is found in barium principal series smaller wave-length 4554. That is, the components of these two lines are represented in three series types. There are other lines both in yttrium and in zircon whose components can be selected by using more than one line of barium and mercury. Such a comparison points to a difference in the character of the lines rather than to an identity. From a glance at the tables it is seen that the components of lines are multiples of intervals. Further, that the lines under comparison are likewise multiples of the same intervals, but that the multiples are only partially identical when they have the same interval and the components have the same multiple proportions. One may further add, the components should have the same relative intensity. This is the condition fulfilled in the principal and subordinate series. The quadruplets of the principal series are four- and two-fold the interval $+.37$ ($=\Delta\lambda/\lambda^2$), for field strength 24400, and the sextuplets five-, three-, and one-fold the same values.

While I was engaged in making these comparisons an investi-
bearing directly upon this point was published by Professor

Runge.[1] I have accordingly tabulated the intervals from Professor Runge's contribution, intervals from his previous contributions, and the intervals in the present substances, all in one table, which presents the matter more clearly than any verbal description. An interval multiplied by multiple "factors" (small whole numbers) constitutes a type by Preston's law. I have tried only to find representatives of Professor Runge's types, rather than all the lines and all the substances of these types. By way of explanation, the value *"a"* in the following table corresponds to the separation of 1.11 for present field strength, and is the separation designated, "normal triplet" by Professor Runge. This triplet gave him the value of 1.75×10^7 for e/m (charge/mass) in the equation, $a=\Delta\lambda/\lambda^2=(e/m)\ (H/4\pi)$; c is the velocity of light and H the field strength. With regard to these separations Professor Runge observes,

"Die bisher beobachteten Komplizierten Zerlegungen von Spectrallinien im magnetischen Felde zeigen die folgende Eigentumlichkeit: Die Abstände der Komponenten von der Mitte sind Vielfache eines aliquoten Teil des normalen Abstandes "a"$=\Delta\lambda/\lambda^2=(e/m)\ (H/4\pi c)$. Sicher beobactet sind bisher die Teile $a/2$, $a/3$, $a/4$, $a/5$, $a/6$, $a/7$, $a/11$, $a/12$."

[1] *Physikalische Zeitschrifte* 8, April 15, 1907.

TABLE OF INTERVALS

Interval or approximate part of "a"	Multiples of the intervals = "factors"	No. of lines represented	Substance to which types belong	Remarks	λ
	22, 15, 12, 7	1	Zr.	.....	3459.1
	22, 16, 10, 9	1	Zr.	.....	4440.8
.10	13, 7	1	Zr.	.....	3891.61
(a/11)	15, 13, 11, 2, 0	1	Ne.	.....	.....
	20,16,14,12,8,8,4	1	Hg.	[1].1, N. II	3655
	12, 7	1	Os.	.....	4420.63
.12 (a/9)[2]	7, 4	1	Y.	.....	5510. 1
	7, 5, 4, 3, 2	1	Y.	.....	4235.89
a/6 .18	10, 9, 8, 7, 6, 2, 1, 0	1	Ne.	.....	.....
a/6 .185	14, 9, 5, 4, 0	1	Ne.	.....	.....
a/6 .19	9, 7, 5, 2, 0	1	Y.	.....	4398.21
.20	9, 6, 4, 3	1	Y.	.....	4083.89
	7, 6	1	Y.	.....	4682.5
(2a/11)	5, 1—	1	Y.	.....	4375.11
	5, 2	1	Y.	.....	4177.68
	5, 4	1	Zr.	.....	4004.51
	10, 8, 7, 6, 4, 2	1	Hg.	.....	.....
.21	3, 2	1	Zr.	.....	3674.98
.22	9, 7, 3, 1	1	Y.	.....	4236.10
	4, 3	1	Zr.	.....	3894.00
	4, 1	1	Zr.	.....	3916.16
(a/5)	8, 7, 6, 5, 2, 1	1	Ne.	.....	.....
	8, 5, 4, 3	....	Cu.Ag.Al.Tl	I. N. S.	.....
	8, 5, 4, 3	1	Ba.	I. N. S.[3]	.....
	8, 4	...	Cu.Ra.Ag.Tl	I. N. S.[4]	.....
.25	6, 5, 1, 0	1	Zr.	.....	4171.65
	6, 1	1	Zr.	3a/11(5, 1)	4256.66
.26(2a/9)	6, 5, 3, 0	1	Zr.	a/11(15, 14, 8, 0)	4258.31
(3a/13)[2]	8, 3, 2	3	Zr.	a/11(21, 8, 5)	See Zr. 6 Com.
	7, 2, 0	1	Zr.	a/11(18, 5, 0)	4061.70

[1] When *p*- and *s*-components are duplicates in position, they are designated by repeating a number.

[2] Series types, shown by Na, Cu, Ag, Al, Pt, Mg, Ca, Sr, Ba.

[3] Ba 4166 is just as accurately represented by a/4(6, 4, 3, 2), and Ra 4436 by a/4(6, 3). Neither of the two systems represents it accurately. Multiples of (a/11) represent these lines even better, except for one component.

[4] The triplets of this first subordinate series are 3 and 5 times a/5.

TABLE OF INTERVALS—*Continued*

Interval or approximate part of "a"	Multiples of the intervals = "factors"	No. of lines represented	Substance to which types belong	Remarks	λ
$a/4$ .265	8, 5, 3, 2, 0	1	Y.	.....	3584.71
$a/4$ .27	6, 5	1	Zr.	$a/10(16, 13)$	3470.10
$a/4$	6, 5, 4, 1, 0	1	Ne.	....	.....
$a/4$	7, 5, 4, 3	2	Zr.	See Zr. 8 Comp.	.....
$a/4$	3, 2	1	Zr.	.....	4456.50
.29	7, 1	2	Zr.	λ=4003.28 and	3578.40
.29	2, 1	1	Zr.	.....	3588.15
$3a/11$ .30	5, 2 (?)	1	Ba.	.....	5971.9
$3a/11$	4, 1	1	Y.	.....	3833.10
$3a/11$	4, 1	1	Zr.	.....	3890.58
$3a/11$	4, 3	1	Zr.	.....	3568.32
$3a/11$ .305	6, 3, 2, 0	1	Zr.	$a/11(18, 9, 70)$	4093.32
$3a/10$ .32	9, 4, 0	1	Zr.	.....	4187.30
$3a/10$ .32	5, 2	1	Zr.	....	4418.80
$3a/10$ .33	4, 2	1	Zr.	.....	4034.30
$3a/10$ .33	4, 1	1	Zr.	.....	4031.57
$3a/10$ .33	2, 1	1	Zr.	.....	3284.89
$3a/10$ .34	3, 2, 1	1	Zr.	.....	3396.51
$3a/10$ .34	4, 1	1	Zr.	.....	3634.33
$a/2$ .36	5, 3, 1	1	Zr.	.....	3483.70
$a/2$ .36	3, 2, 2	1	Zr.	[1]	3482.96
$a/2$ .36	5, 3, 1	2	Ba.	H and	.....
$a/2$ .36	4, 2	2	Ba.	$2N^2$	.....
$a/2$ .37	4, 2	1	Y.	.....	3200.44
$a/2$ .37	3, 1, 0	1	Zr.	.....	3376.42
$a/2$ .37	6, 4, 3, 2, 1, 0	2	Zr.	See Zr. 11 Comp.	.....
$a/2$ .38	5, 3	1	Zr.	.....	3323.21
$a/2$ .38	5, 1, 0	1	Y.	.....	4477.1
$a/2$ .38	4, 1, 0	1	Y.	....	3951.76
.39	4, 3, 2	1	Zr.	.....	4110.29
.39	4, 3	1	Zr.	....	3434.08
$4a/11$	4, 3, 2, 7 (0?)	....	Hg.	I. N. II. h.	3125.8

[1] When *p*- and *s*-components are duplicates in position, they are designated by repeating a number.

[2] Series types shown by Na, Cu, Ag, Al, Pt, Mg, Ca, Sr, Ba.

TABLE OF INTERVALS—*Continued*

Interval or approximate part of "a"	Multiples of the intervals = "factors"	No. of lines represented	Substance to which types belong	Remarks	λ
3a/8 .42	3, 2	8	Zr.		.....
	3, 1	6	Zr.	See	.....
	4, 1	3	Zr.	Zircon	.....
	4, 2	2	Zr.	Quadruplet	.....
	2, 1	1	Zr.	Table.	.....
.43	5, 4, 2, 1, 0	2	Zr.	See Zr. 9 Comp.	.....
	4, 3, 2, 0	1	Zr.	.....	3368.01
	6, 4, 1	1	Zr.	a/10(27, 17, 4)	3554.31
	4, 3, 2, 2, 1, 1	1	Y.	[4]	3818.49
.48	3, 1, 0	1	Zr.	.....	5350.5
5a/11 .50	5, 6 (1?)	1	Zr.	.....	3498.00
	3, 1	3	Zr.	See Zr. 4 Comp.	.....
	3, 2, 1, 1, 0	1	Y.	[1]	3950.51
	3, 1	2	Y.	See Y Quadrup.	.....
.51	2, 1	1	Zr.	.....	4582.50
	3, 1	2	Zr.	λ=4429.28 and	4024.20
	3, 2 (?)	1	Zr.	.....	3480.59
a/2 .53	2, 1, 1, 0	1	Zr.	.....	4055.2
.54	5, 3, 2, 1, 0	1	Y.	I. N. I. S.	4199.46
	4, 2, 2, 0, 0	1	Zr.	.....	4268.22
.55	3, 2, 1	1	Ba.	.....	.....
	3, 2, 1	2	Y.	λ=4358.91 and	3195.81
	5, 1	1	Y.	.....	.....
	3, 2, 1	1	Zr.	.....	4590.81
	5, 3, 2	1	Zr.	.....	4431.70
	4, 3, 2, 1, 0	1	Ne.	.....	.....
	5, 3, 2, 1, 0	....	Hg.	I. N. I. S.	.....
	5, 2, 1, 0	....	Hg.	I. N. II. S.	.....
	4, 3, 2, 1	....	Hg.	2N. I.	.....
	4, 3, 1	....	Hg.	2N. II.	.....
	4	....	Hg.	2N. III.	.....
.57	2, 1	....	Zr.	λ=3934.99 and	3973.68
.60	3, 2, 2, 0	1	Zr.	.....	4214.05
6a/11	1, 2	1	Zr.	[2]	3454.71
.63	3, 2, 1, 1, 0	1	Y.	.....	3628.89
(3a/5) .67	3, 1, 0	1	Zr.	a/11(20, 7, 0)	3501.50
(3a/4) .83	2, 1, 0	1	Zr.	.....	4046.30

[1] When *p*- and *s*-components are duplicates in position, they are designated by repeating a number.

[2] The *p*-component lies outside of the *s*-component.

In determining the intervals of the substances, I have used the components only of the line in question, and recorded the largest aliquot part of these components as the interval. This process yielded intervals which in themselves are multiples of a small value, e. g. there are intervals $a/11$, $2a/11$, $3a/11$, $4a/11$, $5a/11$, $6a/11$, $2a/12$, $3a/12$, $4a/12$, $6a/12$, $3a/16$, $6a/16$, $9a/16$, $12a/16$, and possibly others. These intervals may be expressed in $a/11$, $a/12$, $a/16$, and the multiple factors correspondingly increased. Professor Runge prefers this method. So far as the comparison of lines is concerned, it is entirely immaterial.

The actual number of intervals is many less than recorded in the tables. A bracket indicates that the intervals .53, .54, .55, and .57 may all in reality be the interval $a/2$ (=.554). The greatest deviation, .09, is in a four-fold of .53. It is advantageous, however, to preserve the factor .53 in the tables just as it is. For, if a six-fold or greater factor of .53 should be found in any substance, the interval would probably not belong in $a/2$. When the multiple factors are small, wider ranges in the intervals can be regarded as coming under one interval. The inverse is true for large multiple proportions. Therefore one could more readily classify .33 (with largest factor equal to 4) under .32 (with largest factor 9) than in the inverse manner. However, .33 is an aliquot ($3a/10$) of a. Taking $3a/10$ as an interval, the .34 (with factor 4) interval is reasonably near it, but the .32 interval is near the limit of allowable error. The interval .29 is midway between $a4$(=.28) and $3a/11$ (=.30). Without material error, it could be classified $a/4$ or $3a/11$. Its factors are not present in either $a14$ or $3a/11$, and for the present may remain unclassed. The same difficulty arose with .21 until further classifying showed the presence of 2, 3, and 4 times .21, and that these could be represented by $3a/16$, $6a/16$, $9a/16$, and $12a/16$.

It may be contended that the magnitude of the intervals indicates an irrational part of the normal "a" rather than aliquot parts of such a normal value, or in other words that the "normal" is fictitious. Such a conclusion is possible, and if an examination of other substances gives other apparent irrational intervals with numerous and large factors, it will be the more logical conclusion.

As soon, however, as one omits the quadruplets, there remain but few lines which suggest this difficulty. With respect to the quadruplets one can very frequently change the interval and at the same time change the factors so that the line is practically just as well represented. Also, with two values, i. e. four components, distinction is difficult, whereas with six and more components the intervals can be determined with considerable sharpness.

Lines with many components have frequently a larger interval which occurs as a common difference in passing from component to component instead of measuring from the position of the undisturbed component. In Neon one finds the *s*-components of the line 6217.5 represented by $\pm$ (14, 9, 5) $a/6$, or a common difference of $5a/6$ repeated four times. The *p*-components of the same line are represented by $\pm$ (5.0) $a/6$, or $5a/6$ repeated twice more. In zircon, 3459.1, the *s*-components are $\pm(23, 15, 7)a/11$, or the distance $8a/11$ occurs four times. For the *p*-components of this line one finds $12a/11$ two times repeated. In yttrium, 4235.89, the perpendicular components are represented by $\pm(7, 5, 3)$ $a/6$ and the parallel components by $(4, a)a/6$, or the distance $a/3$ is measured eight times in this line. Numerous other cases can be found in the table.

From the examples given one sees that the distance between the adjacent *p*- and *s*-components is much smaller than the distance between the single *p*- or single *s*-components. This smaller distance is naturally more accurately determinable as the number of components increases. Then it is evident that the greater separations are always whole multiples of small distances, and also that the distances from the position of the undisturbed component are whole multiples of such a small distance of "interval."

In the quadruplets the small interval is more difficult to determine, and they therefore have less weight in determining this fundamental question of the rationality or irrationality of the "interval" space. In these quadruplets, however, one sees that the components stand in a simple numerical relation to each other.

The multiples and their intervals remind one of the law of multiple proportions in chemistry.

By means of intervals, their multiples, and multiple factors, one obtains a most convenient method of comparing lines and substances. The quadruplet principal series types which Professor Runge found in Na, Cu, Ag, Al, Tl, Mg, Ca, Sr, are represented by $a/3(4, 2)$.

In yttrium there is one line, 3200.44, which may possess these values, but the companion sextuplet is absent. It may be of type $(15, 7)a/11$. The sextuplet principal series, $a/3(5, 3, 1)$, found in the same substances, has a solitary representative in zirconium in the line 3483.70, but the companion quadruplet is absent. Hg., first subordinate series satellite, 3663.05, is probably represented in yttrium by 4199.46. The separations of the components of the yttrium line are a trifle smaller. One line, 3624.10, in zirconium is like two lines, 4128.49 and 3930.84, in yttrium. These lines are 4 and 1 times $3a/11$. Similarly there are five lines in zirconium whose separation is like two yttrium lines and the separations $5a/11(3, 1)$. Among these there is considerable variation from the desirable accuracy. These lines are zirconium 4429.3, 4199.2, 4043.8, 4024.2, 3296.6, and yttrium 4475.9 and 3449. Zirconium 4590.8, barium 5997.4, and yttrium 3195.8, 4358.9, are types of $a/2(3, 2, 1)$. These yttrium lines are the best duplications observed. The most prominent feature of the interval tables is the types (interval times factors) which are only once represented. As before mentioned, it requires four lines to make sure of a series. Hence the table excludes series except in zirconium under the interval .42. These lines are unequally distributed in distances (in terms of vibrations per cm.). The intensities are also irregular. The factors, by which the intervals must be multiplied to give the required separation, are very numerous, as well as possessing a variety of combinations. The principal series and second subordinate series of the previousiy mentioned substances have the interval $a/3$. This interval is represented by eleven lines in yttrium and zirconium, but only in two cases are the factors of proper magnitude and number to produce the series type. This leaves nine new types under this interval.

Under $a/11$, an interval of the Hg first subordinate series and multiples of $a/11$, there are six yttrium, fifteen zircon, one neon,

and one osmium line, or total of twenty-three lines. There are some duplicates, which leaves eighteen types, including neon, and these are all different from the type of Hg line 3655. The interval $a/5$ is well represented in the first subordinate series satellite of Cu, Ag, Al, and Tl, but the interval does not enter in right proportions in yttrium or zircon to form the same types. Some types have the same factors as others with one or more factors suppressed. The question naturally arises, whether these lines may not be duplicates and whether the omission might not have arisen from weakness of the component or inadequate exposure. This may be true in a few cases, but generally it is not for the following reason. The ratio of the intensity of components is known both in the line having all the components and in the line having some components hypothetically missing. A simple mental calculation will then tell whether the missing component, if existing at all, may have been too weak to leave a photographic impression on the plate.

IX. Conclusions

1. The lines of the triplet class in barium mostly fall into groups with a separation similar to the separation of some components of lines other than triplets.

2. A great majority of all lines, having more than three components, possess underlying simplicity and likeness in the great variety of their separations. This simplicity or similarity is manifested in small magnitudes which are designated by the term "intervals." The components of these lines are obtained by multiplying the intervals by "factors." The intervals themselves may have multiples. The smallest intervals are aliquot parts of a, (where a is the separation of the "normal triplet" as given by Professor Runge). The latter recently found in neon, the aliquot intervals $a/2$, $a/3$, $a/4$, $a/5$, $a/6$, $a/7$, $a/11$, $a/12$. All except $a/12$ are observed in the present experiment.

3. The great variety in the magnetic separations arises principally from the variation both in number and in magnitude of the interval factors. The product of interval and factor or combination of factors gives the types of separation.

4. The interval .37 ($=a/3$) times (4, 2) and (5, 3, 1) gives respectively the quadruplet and sextuplet principal series and second subordinate series found by Professor Runge in Na, Cu, Ag, Al, Tl, Mg, Ca, Sr, Ba, Ra. The quadruplet has one doubtful representative in yttrium, and the sextet one line in zircon. However, the same interval, combined with factors in other proportions, gives nine new types. One of the Hg first subordinate series types has a solitary representative in these substances, but the intervals yield at least eighteen new types.

5. The substances yttrium and zircon yield a great number of new types.

6. The most prominent characteristic of the numerous new types is the number which are unrepeated in the spectral range of these experiments. It would be interesting to extend the measurements far into the ultra violet with a much stronger field, to see if there are not more repetitions and even series.

7. The interval ($.42(=6a/16)$) in zircon is the only one which would promise series types. There are eight quadruplets of one type and six of another, but no series found.

8. There are six lines in yttrium like seven lines in zircon, and these are represented by three types. These are scarcely enough terms to suggest similarity of the substances. Chemically, however, there is a similarity. The substances are parallel terms in two adjacent (third and fourth) Mendelejeff's groups.

9. The one quadruplet of osmium has an interval of the first subordinate series, but it is not of the latter type.

10. An investigation of triplets for series is always tedious. Dividing them into groups, as in barium above, is advantageous frequently. They then look like other types with suppressed components. But in yttrium and zirconium one would be at a loss to know which type had the component suppressed. This would suggest that a given separation in such triplets may represent more than one type. The investigation of yttrium triplets for series has been reasonably complete and negative. In zircon, time has permitted the study of only a few triplet magnitudes. The results have been likewise negative. The triplet values are extended over

a large range. They do not collect around a "normal separation" or multiples of aliquot parts of a normal separation.

11. Lines with no components (unseparated) in zirconium show no series. Most of these lines are probably unanalyzed types.

12. There are a great many lines which may be associated in pairs. Such lines are comparatively near each other on the scale of vibrations. The pairs may have the same separation or not, and have the same or different number of components. In substances which have yielded series, such pairs are frequently conspicuous. These pairs repeat themselves in other parts of the spectrum with considerable uniformity of separation. In osmium repetitions are not present, and in yttrium and zircon only apparently so since the separations of the prospective pairs are very irregular.

X. General Conclusion

There is a general dissimilarity between the lines of yttrium and zircon, and between these lines and the lines of all substances which have yielded series. But all substances have common fundamental intervals of small magnitude, and few in number, intimately connected with a "normal separation."

In conclusion I wish to thank Professor Voigt of the University of Göttingen, Germany, who suggested this investigation and kindly placed the resources of the Institute at my disposal, for his friendly assistance and enthusiastic encouragement. Likewise, I acknowledge my obligations to Professor Runge of the same University, whose invaluable experience in spectral work was courteously given me.

II.—*Specific Characters in the Bee Genus Colletes*

BY MYRON HARMON SWENK

Five years ago the writer began the accumulation of material in this genus with the intention of ultimately monographing the North American species. The choice was determined partly for the reason that the collection of the University of Nebraska contained an excellent nucleus of material for such a study, and partly because almost nothing had been done either in Europe or America to enable the determination of the species, which, except for a few tables accompanying local lists, were known chiefly from isolated and mostly unsatisfactory descriptions. In fact, the genus had been practically ignored by systematic hymenopterists. Work had not proceeded far, however, before it became apparent that the task was beset with unusual difficulties. The lack of well-marked structural characters throughout the genus had led authors to emphasize the coloration and arrangement of the pubescence and other equally variable features as criteria of specific distinctness, while the more stable differences in sculpture and proportion of parts were largely passed over. This made the recognition of species from their original descriptions a matter of considerable uncertainty and always of great difficulty, and, combined with the paucity of reliably named material in collections, caused the work of revision to progress very slowly. But through the generosity of Messrs. Cockerell, Robertson, Viereck, and several other of our hymenopterists in sending certain authentically named specimens from their collections, and in kindly comparing with the types in their care material tentatively determined by the writer, a collection of reliably named specimens has been gradually built up which can form the basis of a preliminary revision. In the present paper all the species, twenty-six in number, possessing black thoracic hairs, at least in the female, are

included. These form a compact group of allied species, including about one-third of the North American forms. It is the intention of the writer to subsequently treat the remaining species in a similar manner.

The chief difficulty in depending on the color of the pilosity for specific characters lies in the tendency of the original color to undergo a rapid fading, so that a specimen in which the hair of the thorax and face was of a bright yellowish color when fresh will, in a short time, fade to a pale gray without a tinge of yellow; hence such dichotomy as "hair of face yellowish" against "hair of face white" becomes utterly valueless as a distinction between species. And added to this is the general faded appearance of a species in the more arid portions of its range, even in perfectly fresh specimens. Thus *C. armatus* in Nebraska has the thoracic pubescence of the male always dull gray, while fresh eastern specimens have it deep ochreous gray mixed with black; the two are beyond all doubt conspecific, yet in the majority of tables would run far apart. Nor is such fading confined to the pubescence, for a similar variation in color is found in the nervures, which vary in the above mentioned species from brownish black to pale testaceous. The amount of brownish suffusion of the apical tarsal joints, the amount of red on the mandibles, the intensity of shade on the lower surface of the flagellum, the shade of color of the tegulae, and other characters based on the color of the integument, all vary so greatly in different specimens, which have experienced a greater or less amount of weathering, as to render them quite useless. The size and arrangement of the abdominal fasciae is another character largely used by workers in this group. That these possess some value when unmutilated is not questioned, but so easily do they rub off that one must go over a large series of specimens before finding a perfect one, and discriminations based on the characters of the fasciae alone would prove of no value in determining the great majority of specimens. The presence or absence of black thoracic hairs is really about the only character in the color of the pilosity which is of constant value and phyletic significance. The sculpture of the labrum is usually so difficult to see properly, and so variable in a series that its

value as a character is greatly impaired; so much so that it is scarcely worth the trouble to describe it. The color of the wings and the amount of their clouding, except in a few cases, is usually a character so variable as to be of comparatively little use in separating species. For instance, to use *C. armatus* again as an example, some specimens have the wings deeply clouded while others have them subhyaline, and between the two there is every gradation.

Accordingly, if we are to make our specific diagnosis of any general value in classification, the accurate description of the body puncturation must be emphasized, along with such few structural characters as do occur. In the females the presence or absence of spines on the anterior coxae, the simple or pectinate structure of the outer spur of the hind tibiae, the equally cleft or medially toothed claws, and the presence or absence of prothoracic spines are all characters of value. In both sexes the relative length and breadth of the malar space, the general shape of the face judged by the parallel or convergent orbits, the relative proportions of the antennal joints both individually and between each other, the stoutness or slenderness of the hind metatarsi, the depressions or reflexions of the margins of the abdominal segments, the presence or absence of carinae or foveae on the last exposed ventral plate, and any other similar characters are constant, and can be depended upon to serve, no matter what the condition of the pilosity of specimen may be. In the sculpture characters the general shape and puncturation of the clypeus, the presence or absence of a superior metathoracic face and the number and shape of the pits upon it if present, the sculpture of the enclosure on the base of metathorax (propodeum) and the degree of puncturation of the basal abdominal segments and the disk of mesothorax are the ones which show the best differences. By careful measurements and descriptions these differences can be intelligibly expressed, and in the majority of cases the species can be differentiated with reasonable ease and certainty.

In the case of the males, however, we have an additional set of structures which abounds in characters of the greatest specific value, namely, the armatures and concealed seventh ventral plate.

The importance of these has been admirably brought out by Rev. F. D. Morice in his study of thirty-four palaearctic species (*Transactions of the Entomological Society of London,* 1904, pp. 25–63), especially in the case of the seventh ventral plate. Concerning this structure he says: "The seventh ventral plate is a most interesting and surprising object. Its base is a ribbon-like strip or arch of chitin, joined at each end to the corresponding dorsal plate. Springing from the apex of this arch appear nearly always two large symmetrical lobes or 'wings.' They are perfectly colourless and membranous at the extreme apex, still membranous, but more or less infuscated, punctured, and pilose on the disc, evidently chitinized at the base and along the inner margin, and at least somewhat thickened and darkened on the exterior margin. . . The form, colour and pilosity of these lobes differ specifically to such an extent, that many species can be distinguished at a glance by these characters alone. Not only the actual outlines, but even the minute veinings, cloudings, etc. of the membrane seem to be extremely constant. . . I have frequently dissected many specimens of one species from widely-different localities, and have nearly always found their seventh segments exactly similar, and quite unlike that of any other species. The cases in which two different species have this plate deceptively similar, are extremely rare; and curiously enough, where this *does* happen, the insects themselves are very unlike each other in external characters. . . It is perfectly easy, with a little practice, so to prepare either fresh or relaxed specimens as to display this segment sufficiently for all practical purposes; or it can be actually removed and mounted separately without any noticeable disfiguring of the specimen, but in that case the ligaments connecting it with the dorsal plate must be severed cautiously first." In order to thoroughly test the constancy of the form and pilosity of this plate the writer dissected forty odd specimens of *C. inaequalis,* and found the plate exactly the same in all.

Along with the seventh ventral plate the armatures themselves present specific characters of great value, but because of their more complex structure are of less practical use in this connec-

tion. Following the nomenclature adopted by Rev. Morice, the general construction of the armature is as follows: There is a basal portion, the *cardo,* upon which articulate two pairs of forceps-like structures, the *stipites* and *sagittae.* Each stipes or outer pair generally appears three-jointed when viewed from the dorsal side, there being a small, pilose *apex,* a larger *central joint,* and a large *basal joint* which bulges in to meet its fellow below the sagittae; between the basal and central joint is usually a transverse suture, the *notch.* The sagittae or inner pair are two rods of chitin of very variable form, much dilated basally, and apically expanded into a membranous *wing.* Protruding from the inner base of each stipes and partially covered by the dilation of the sagitta in the dorsal aspect, is a bifid structure the inner surfaces or jaws of which are tuberculated, the *volsella.* These structures, as Rev. Morice points out, are all of more or less value in distinguishing the species, but are not nearly so convenient as the seventh ventral plate. The help of these concealed structures to the systematist can scarcely be overestimated. Not only do they furnish most excellent criteria for deciding upon the specific identity or distinctness of two forms in hand, but a species can usually be told at a glance, thus doing away with the necessity of toiling through tables of slight external characters—every species, one may almost say, bears its own label. In this paper illustrations of the seventh ventral plate and outline drawings of the armatures of each of the eighteen species known to the writer are given; of the eight remaining species five are unknown in the male and the other three are known only by the types, which are not available for dissection.

The pronounced sexual dissimilarity in this genus renders the proper matching of the sexes often a matter of unusual difficulty. The males are almost always smaller than the females (larger, however, in the *aestivalis* group), more slender, and more densely pubescent, usually with a dense clypeal beard. The antennae are usually much longer and the joints differently proportioned, the scape being short and cylindrical instead of long and clavate. The malar space is almost invariably longer, legs more slender, fasciae narrower, spurs not pectinate and coxal spines obsolete.

Even the puncturation varies considerably in degree though rarely in pattern, being usually coarser in the male. There is, however, beneath all their superficial differences, almost always some clue to clearly show the consanguinity of the specimens.

As to the history of the genus a word might be said. Among the numerous species included under the genus *Apis* by Linnaeus in the tenth edition of his *Systema Naturae,* the first mentioned species referable to the genus *Colletes* as now restricted is *Apis succincta.* This species was retained by Linnaeus in the genus *Apis* in the twelfth edition of his monumental work and also in his *Fauna Suecica,* second edition. In 1781, however, Fabricius in his *Species Insectorum* referred *Apis succincta* to his genus *Andrena,* which he had erected six years previously, continuing this generic disposition of the species in his later works, and being followed by Petagna, Olivier, Cederhjelm, and Lamarck, while other authors continued to refer to the species as *Apis succincta.*

In 1802 appeared Latreille's *Histoire Naturelle des Fourmis,* and the first four parts of his *Histoire Naturelle des Crustacés et des Insectes,* while in the same year Kirby's *Monographia Apum Angliae* was published. In Latreille's papers a bee considered by him to be the *Apis succincta* of Linnaeus is referred to a new genus, *Colletes,* while in Kirby's monograph the same species is placed, along with other bees, in the genus *Melitta,* which he established for their reception, it being furthermore the first mentioned species in the genus. These three publications appearing in the same year and bearing no date-marks further than 1802 make the ascertainment of priority of publication an exceedingly difficult, if not impossible, matter. Granting Kirby's paper priority and adhering strictly to the first species rule would necessitate the supplanting of *Colletes* by the name *Melitta,* a view favored by Mr. Charles Robertson, who informs me that *Monographia Apum Angliae,* ii, page 32, has priority over *Histoire Naturelle des Crustacés et des Insectes,* part 3, page 372, and that he thinks the first mentioned species of the original author has priority as a representative of the genus, and that no subsequent author has any right to change the type. But, as

Mr. Robertson remarks, *Histoire Naturelle des Fourmis,* page 423, may have priority over both the papers just mentioned; in fact there are indications which to my mind favor that view. Moreover, the name *Melitta* is now applied to another genus of bees the type of which may be selected from one of the original species. On the whole, then, it seems best to give the old and familiar name the benefit of the doubt, and thus avoid a radical overturning of long-established names.

As to the identity of Latreille's *Colletes succinctus,* asserted by Nylander in his *Revisio Synoptica Apum Borealium* not to be the *Apis succincta* of Linnaeus, and to which he applied the name *Colletes balteatus,* there seems to be some doubt, but there seems also to be no good reason why Latreille's species should be referred to *balteatus* rather than *succinctus.* As Rev. Morice says, "Nylander first proposed *balteatus* as a name for Latreille's *succinctus,* which he considered not to be the *succinctus* of Linné. But I can find nothing either in Latreille or Nylander to show what the insect really was which Latreille called *succinctus.* Several species seem to me to suit all that is said by either author quite as well as the present [*balteatus*]." *Colletes succinctus* as identified by modern authors, and in all probability correctly, is a very common palaearctic species ranging from England and Scandinavia over the whole of Europe to Egypt, and could as easily have been the form Latreille had when he identified *succincta* as any other species; moreover, his genus was based as much upon *Apis succincta* Linnaeus as upon the specimens at hand. These considerations have induced me to consider *Colletes succinctus* as the type species of the genus.

Genus COLLETES Latreille, 1802.

1802. *Histoire Naturelle des Fourmis,* etc., p. 423.

1802. *Histoire Naturelle générale et particulière des Crustacés et des Insects,* iii, p. 372.

TYPE.—*Colletes succinctus* (Linnaeus) Latreille.

GENERIC CHARACTERS.—Tongue short, broad, deeply triangularly emarginate at apex; labial palpi short, 4-jointed, the joints similar; maxillary palpi 6-jointed, joint 1 hardly longer than 2 and 3, joints 2-5 scarcely longer than thick, 6 a little shorter than 1; stigma well-developed but not

large; front wings with three cubital cells, the first along the cubitus fully or nearly as long as the second and third which are subequal, together; first recurrent nervure received by second cubital cell at its middle, second recurrent nervure sinuate or somewhat S-shaped, received by third cubital cell beyond its middle; hind femora of ♀ with a pollen brush, the hind tibiae without a knee plate; head and thorax usually densely pubescent and abdomen usually fasciate; base of metathorax (propodeum) usually with a superior face defined by a ridge and divided into pits by longitudinal carinae.

KEY TO SPECIES

FEMALES

Thorax above, or at least fringe on scutellum, with black hairs.

1. Anterior coxae without spines, or, if present, short and rudimentary. 2
1. Anterior coxae with long, distinct, hairy spines.....19
2. Basal abdominal segment strongly and distinctly punctured.. 3
2. Basal abdominal segment weakly and indistinctly punctured, or subimpunctate 13
3. Clypeus strongly convex, closely, evenly, and strongly but not striately punctured; antennae very short, joint 3 nearly = 4+5; malar space linear; no prothoracic spine; 9-10 mm.....*brevicornis*
3. Clypeus weakly, non-striately punctured on an opaque, minutely lined surface; malar space one-sixth as long as broad; prothorax spined; 8-11 mm.....*willistoni*
3. Clypeus punctured otherwise..... 4
4. Prothorax with prominent lateral spines..... 5
4. Prothorax without spines..... 11
5. Bowl of enclosure smooth and shining, not transversely rugose.... 6
5. Bowl of enclosure coarsely transversely rugose, the rugae interrupted in a median line..... 10
6. Postscutellum with a series of pits along anterior border; malar space linear; wings basally subhyaline, apically darkened; almost bare; 10-12 mm.....*nudus*
6. Postscutellum without a series of pits on anterior border; malar space well-defined..... 7
7. Basal joint of hind tarsi very short and broad, its length not over two and one-half times its width, generally less; clypeus coarsely striate-punctate and broadly sulcate; spurs short and dark; malar space one-sixth as long as broad; 11-12 mm....*latitarsis*
7. Basal joint of hind tarsi more slender, three times as long as broad or more; clypeus with its punctures coarse but well-separated 8
8. Malar space one-half as long as broad; outer hind tibial spur not pectinate; 11 mm.....*banksi*

8. Malar space one-sixth as long as broad; outer hind tibial spur coarsely pectinate..... 9
9. Disk of mesothorax and anterior half of scutellum coarsely and rather closely punctured; more robust; superior face of metathorax broader; head longer; 8-9 mm.....*crawfordi*
9. Disk of mesothorax and anterior half of scutellum smooth and shiny, subimpunctate; more slender; superior face of metathorax smaller; head shorter; 10 mm.....*chamaesarachae*
10. Malar space about three-fifths as long as broad; clypeus entire; no fascia on base of segment 2; 10-11.5 mm.....*skinneri*
10. Malar space about one-sixth as long as broad; clypeus slightly emarginate; segment 2 fasciate at base; 13-15 mm. .....*gilensis*
11. Ventral valve of apex bicarinate; metathorax with a rugose triangular enclosure and no pitted superior face; segment 2 fasciate at base; 9-14 mm.....*compactus*
11. Ventral valve of apex simple; metathorax with a distinct superior face crossed by a transverse series of subquadrate pits; segment 2 not fasciate at base..... 12
12. Malar space about three-tenths as long as wide; clypeus convex, coarsely striate-punctate; 12-13 mm.....*inaequalis*
12. Malar space very elongate, one and one-half times as long as broad; clypeus long, non-striately punctured, broadly medially sulcate; 11-12 mm.....*validus*
13. Malar space about one-half as long as wide..... 14
13. Malar space short, less than one-half as long as wide..... 16
14. Flagellar joints about as long as wide; mesothorax coarsely punctured; joint 3=4; two basal abdominal segments impunctate, segment 2 fasciate at base; 11 mm.....*distinctus*
14. Flagellar joints distinctly shorter than wide; abdomen thinly fasciate, none on base of 2..... 15
15. Mesothorax with large and close punctures; clypeus flat, not sulcate; joint 3=4; two basal abdominal segments impunctate; wings clouded, their nervures black; 9 mm.....*lacustris*
15. Mesothorax very finely and sparsely punctured; clypeus convex, broadly sulcate; joint 3 exceeding 4; segment 2 finely punctured; wings clear, their nervures brown; 9 mm.....*productus*
16. Mesothorax rather sparsely punctured; scutellum and mesonotum with a few black hairs intermixed; wings hyaline, nervures and stigma black; 8.5 mm.....*algarobiae*
16. Mesothorax coarsely punctured, the punctures crowded anteriorly 17
17. Hair on anterior border of posterior and intermediate tarsi within, black; venter without long, dense scopal fringes; 9.5 mm.*intermixtus*

17. Hair on anterior border of tarsi white; venter with long, dense scopal fringes on the apical margins of the segments..... 18
    18. Outer spur of hind tibiae with about a dozen long, coarse teeth; smaller, length 8 mm.....*texanus*
    18. Outer spur of hind tibiae simple or microscopically ciliate; larger, length 9.5 mm.....*scopiventer*
19. Abdomen very polished, its first segment subimpunctate; mesothorax smoother with a large, polished disk, scutellum polished anteriorly, posteriorly densely, non-striately punctured; 10 mm. .....*fulgidus*
19. Abdomen shiny, its first segment distinctly and closely punctured; mesothorax coarsely, shallowly, subcancellately punctured and with only a small disk, scutellum coarsely striate punctate, medially longitudinally depressed and finely substriate..... 20
    20. Vertex and anterior border of thorax with black hair, the interocellular tuft largely black; 10-11 mm.....*armatus*
    20. Vertex and anterior border of thorax with very few or no black hairs, the interocellular tuft pale..... 21
21. Pubescence of face, thoracic dorsum, tubercles and base of abdomen pale ochreous, the fasciae tinged with that color; 10 mm. .....*angelicus*
21. Pubescence of face whitish, that on thoracic dorsum and tubercles tinged with pale ochreous, the fasciae white; 10-11 mm....*tegularis*

(The females of *fraserae, hydrophilus* and *nevadensis* are not known.)

MALES

1. Middle joints of antennae about as long as wide..... 2
1. Middle joints of antennae distinctly longer than wide..... 4
    2. Joint 3 exceeding 4 or 5; malar space linear; clypeus convex, densely punctured and heavily bearded; abdominal apices much depressed; 8-9 mm.....*brevicornis*
    2. Joint 3=5; malar space one-third to one-half as long as wide; clypeus flat..... 3
3. Basal joint of hind tarsi about three times as long as broad; clypeus opaque, shallowly and weakly punctured; front femora not bearded; 9-10 mm.....*willistoni*
3. Basal joint of hind tarsi about twice as long as broad and with a posterior lobe; clypeus shining, strongly punctured and broadly sulcate; front femora with a long white beard; 10-11 mm..*latitarsis*
    4. Malar space distinctly over one-third as long as wide..... 5
    4. Malar space sublinear, not over one-third as long as wide... 15
5. Basal abdominal segment distinctly and closely punctured..... 6
5. Basal abdominal segment sparsely and feebly punctured, or subimpunctate 10

6. Prothorax with prominent lateral spines..... 7
6. Prothorax without spines..... 8
7. Malar space about as long as broad; smaller, about 9.5 mm...*skinneri*
7. Malar space scarcely one-half as long as broad; larger, about 15 mm. .....*gilensis*
8. Metathorax with a rugose triangular enclosure and no pitted superior face; malar space about as long as broad; 9-11 mm. .....*compactus*
8. Metathorax with a distinct superior face crossed by a transverse series of subquadrate pits..... 9
9. Malar space a little shorter than broad; clypeus flat, not sulcate; hair of legs entirely pale; 10-12 mm.....*inaequalis*
9. Malar space exceedingly long, twice as long as broad; clypeus long, broadly sulcate; posterior tibiae with dark hair; 10 mm.*validus*
10. Joint 4 long, =2+3..... 11
10. Joint 4 short, less than 2+3..... 12
11. Mesothorax coarsely and closely punctured; hair of thorax and face bright yellowish; 10 mm.....*distinctus*
11. Mesothorax finely and sparsely punctured; hair of thorax and face dull white; 8 mm.....*productus*
12. Tarsi clear bright ferruginous; malar space nearly as long as broad; 8 mm.....*algarobiae*
12. Tarsi black 13
13. Basal joint of hind tarsi stout, about three times as long as broad; tibial spurs long and hooked; posterior tibiae medially swollen; vertex impunctate; 9 mm.....*intermixtus*
13. Basal joint of hind tarsi slender, four to six times as long as broad; tibial spurs straight..... 14
14. Malar space about five-sixths as long as broad; 8 mm..*lacustris*
14. Malar space about three-fifths as long as broad; 7 mm..*frascrae*
15. Joint 4 long, =2+3 or exceeding them..... 16
15. Joint 4 short, less than 2+3..... 18
16. Abdomen with basal segment closely and strongly punctured; 10.5 mm.....*hydrophilus*
16. Abdomen rather sparsely punctured..... 17
17. Joint 3=one-half of 4; malar space one-third as long as broad; 9.5 mm. .....*scopiventer*
17. Joint 3 less than one-half of 4; malar space one-fourth as long as broad; 9 mm. .....*nudus*
18. Abdominal fasciae very broad and deeply tinged with ochreous; lobes of the seventh ventral plate hairy from the lateral bristle tufts to the apex, centrally with an area of very long, erect or retrorse hairs: 10 mm.....*angelicus*
18. Abdominal fasciae narrow and pure white; lobes of the seventh ventral plate without a central area of peculiar hairs. 19

19. Lobes of the seventh ventral plate hairy from lateral bristle tufts to apex; 10 mm.....*fulgidus*
19. Lobes of the seventh ventral plate glabrous on most of the striated disk 20
    20. Lobes of seventh ventral plate roughly trapezoidal; 10 mm. .....*nevadensis*
    20. Lobes of seventh ventral plate columnar, expanded abruptly into lateral prolongations apically; 8-10 mm.....*armatus*

(The males of *chamaesarachae, crawfordi, banksi, texanus* and *tegularis* are not known.)

Colletes brevicornis Robertson.

1897. *Colletes brevicornis* Robertson, *Transactions of the Academy of Science of St. Louis,* vii, pp. 315–16, ♂ (May 7, 1897); original description.
1900. *Colletes brevicornis* Robertson, *Ibid.,* x, p. 51, ♀ (February 21, 1900); description of female.
1904. *Colletes brevicornis* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 275, ♀, p. 276, ♂ (September, 1904); in table of Illinois species.
1906. *Colletes brevicornis* Robertson, *Science,* xxiii, p. 309 (February, 1906); season, food plant.
1906. *Colletes opuntiae* Cockerell, *Annals and Magazine of Natural History,* series 7, xvii, pp. 312–13, ♂ ♀ (March, 1906); original description.
1907. *Colletes brevicornis,* form *opuntiae* Cockerell, *University of Colorado Studies,* iv, p. 240, ♂ ♀ (June, 1907); in table of species of Boulder county, Colorado.

♀. Length 9-10 mm. Eye orbits rather strongly converging below. Clypeus strongly convex, punctured closely and evenly with rather large, round punctures, nowhere distinctly striate, its pubescence scattered, short and pale. Supraclypeal area convex and punctured like clypeus. Front coarsely and closely punctured and clothed with short, erect, grayish white pubescence. Cheeks finely and indistinctly punctured, the orbits bounded by an impunctate line, the pubescence sparse and white. Mandible and eye all but touching, the length of the malar space less than one-eighth its width. Antennae short, heavy, clavate, joint 3=4+5, the proportion being 5:3:2, joints 6 and 7 as long as wide, following joints only three-fourths as long as wide. Flagellum paler below, dusky to brownish. Vertex shining, coarsely but separately double punctured, a few of its long hairs black but most of them pale. Prothoracic spine a mere blunt angulation. Mesothorax shining, the punctures large, round, and deep, everywhere well-separated, especially on the disk. Scutellum similarly but rather more coarsely punctured. Postscutellum with punctures small, separated me-

dially but crowded along the edges. Metathorax with a well-defined superior face which bears well-formed shining pits, square medially, the enclosure funnel-shaped, polished, and smooth, the surrounding space only slightly shiny because of a minutely punctured and irregularly reticulated surface, the lateral faces dullish and minutely punctured. Mesopleura with coarse and close but separate punctures. Pubescence of thorax above short, erect, grayish, largely mixed with black especially on scutellar fringe, postscutellum and metathorax with long, whitish hairs, short and white on pleura. Tegulae shining blackish. Wings hyaline, nervures blackish, stigma dark brown. Legs wholly black, their pubescence wholly white except for the usual reddish tarsal tufts. Anterior coxae without spines. Tibial spurs light brownish, the outer ones on hind tibiae finely pectinate. Claws rufous and deeply medially toothed. Basal joint of hind tarsi three and one-half times as long as broad, middle joints one and three-fourths times as long as broad. Abdomen subconical, stoutish, first segment strongly and closely punctured, more finely and closely so toward the apical margin which is depressed and reflexed, as are also both the basal and apical margins of segment 2 which is punctured similarly to the first but more finely so, segment 3 basally depressed with the punctures widely separated, this changing to a close arrangement apically, following segments very finely punctured. Segments 1-5 have narrow white fasciae on the apical margins, continued as ventral fringes, and on the disks short, pale hairs, the apex with some brownish hairs near tip.

♂. Length 8-9 mm. Differs from the ♀ as follows: Clypeus densely bearded with short, appressed, white pubescence, that on thorax above with fewer dark hairs, sometimes only a few inconspicuous fuscous ones, pleura with longer pubescence, anterior femora bearded; antennae with scape short, almost concealed by the facial hair, joint 3 longer than 4 or 5 but shorter than 4+5, the proportion being 5:3:4, the middle flagellar joints as long as wide; malar space a mere line; pits of superior metathoracic face longer than broad, even medially, the enclosure ridged basolaterally; nervures rather paler, apical tarsal joints sometimes brownish; abdominal depressions and reflexions more decided, very narrow fasciae on segments 1-6, the disks with a decidedly longer and denser pubescence; basal joint of hind tarsi slightly less than three times as long as broad, middle joints one and one-fourth times as long as broad.

Genitalia.—Stipes notched, its apex very small, claw-like; sagittal rods parallel throughout, medially expanded into a large subtriangular external tooth, apically broadly truncate; volsella very large, over one-half as long as sagitta; seventh ventral plate small, the apical one-third membranous and subglabrous, medially with a transverse area of short stiff spines running toward an external projecting lobe, basally chitinized and smooth. (Plate 1, figures 1 and 1*a*.)

TYPE LOCALITY.—Carlinville, Illinois; types in collection of Mr. Charles Robertson.

Mr. Robertson originally described this species from a single male specimen captured at Carlinville, and three years later described the female from five specimens taken in the same locality. He gives its season as May 29 to June 29 and says it is an oligotropic visitor of *Specularia perfoliata.* In Nebraska, however, it visits also the closely allied *Campanula rotundifolia,* while I have a female taken on *Melilotus alba.* In Texas it occurs on *Callirhoe involucrata* and *Asclepias latifolia,* while the types of *opuntiae* were taken on *Opuntia* and *Campanula.* In Nebraska it is commonest in Sioux county and along the northern border of the state, where it flies from June 16 to July 16, but mostly in late June. In Texas it flies from March 28 to June 7, while my Montana example was captured August 7. Apparently, then, it is principally a summer species which varies its season considerably according to the latitude and altitude. It is found over most of the eastern United States between the Atlantic coast and the crest of the Rocky mountains, my records showing it to range from New Jersey (North Woodbury) west to western Montana (Missoula), central Colorado (Boulder), eastern Oklahoma (Ardmore) and Texas (Fedor, Dallas). Probably it is not a very common species anywhere. *C. opuntiae* Ckll., said to differ from *brevicornis* ♂ by darker nervures, dark apical tarsal joints and darker mandibles, represents merely one end of the individual variation of the species, similar specimens occurring anywhere in its range; hence I have here regarded the two as quite identical.

SPECIMENS EXAMINED—Indiana: Elkhart, 3; Montana: Missoula, 1; Nebraska: Warbonnet Canyon, Sioux county, 5; Springview, 6; Carns, 2; New Jersey: North Woodbury, 1; Oklahoma: Ardmore, 1; Texas: Fedor, 13; Dallas, 4..

Colletes willistoni Robertson.

1891. *Colletes Willistoni* Robertson, *Transactions of the American Entomological Society*, xviii, pp. 60-61, ♀ (April, 1891); original description.

1895. *Colletes willistonii* Robertson, *Ibid.*, xxii, p. 116, ♂ (May, 1895); description of male.

1904. *Colletes Willistonii* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 275, ♀, p. 276–77, ♂ (September, 1904); in table of Illinois species.

1906. *Colletes willistonii* Robertson, *Science,* xxiii, p. 309 (February, 1906); season, food plant.

♀. Length 8-11 mm. Orbits moderately converging. Clypeus with sparse, shallow, quite weak punctures on a dull, minutely striate, roughened surface, the median sulcus weakly defined or not at all evident, no indication of striae, and clothed with a few short, pale hairs. Supraclypeal area sculptured like clypeus, wholly punctured and opaque. Face with close, strong, deep punctures and short, whitish pubescence. Vertex strongly double punctured, almost bare but with a few long, pale hairs and no black ones in interocellular space, the foveae extending back to form a depression, the occiput fringed with short, dense, white pubescence. Cheeks weakly and sparsely punctured, with a few white hairs near mandibles, occiput with a fringe of short, dense, white hair. Malar space short, about one-sixth as long as broad. Antennae black with the flagellum lighter beneath, sometimes bright brownish, joint 3 longer than 4 or 5, the proportion being 4:3:3, the median flagellar joints distinctly shorter than wide, scape punctured. Prothoracic spine slender and sharp, but so short as to be concealed by the pubescence. Mesothorax with large, coarse, moderately close punctures, widely separated on the small shining disk, sparsely clothed with short white hairs mixed more or less with dark ones on the disk. Scutellum with very large, coarse, shallow punctures, dense behind but fewer anteriorly, bounded behind by a fringe of dark and then another of pale hairs. Postscutellum finely roughened, its pubescence long and white. Base of metathorax with an angulation defining the superior face, which has a distinct series of pits which are shining and twice as long as broad, often squarish medially. Enclosure subtriangular, shining, the neck only one and one-half times as long as broad at base. Lateral faces of metathorax very slightly shiny, with sparse, weak punctures, and covered with long, white pubescence. Mesopleura crowded with coarse but shallow punctures, their pubescence sparse, moderately long, white. Tegulae shiny black. Wings hyaline, nervures dark testaceous to blackish, stigma rufo-testaceous. Legs stout, black, covered with whitish pubescence nowhere mixed with black hairs, longest on anterior femora and posterior tibiae, the inner tarsal apices golden-tufted. Basal joint of hind tarsi between two and one-half and three times as long as broad, middle joints one and one-half times as long as broad. Claws dark red with a short median tooth. Tibial spurs dark testaceous, the hind one of hind tibiae finely ciliate. Anterior coxae feebly spined. Abdomen stout, subconical, slightly shiny, closely and finely punctured, the first two segments strongly so, closer and finer on the second, the following segments finely and feebly

punctured, especially the apical ones, segments 1-5 with narrow white apical fasciae continued indistinctly on venter, the basal truncation subimpunctate and with short, rather dense, erect white hairs around its margin, the rest of tergum with short scattered hairs becoming longer and denser apically, largely dark on segments 3-6. Segments distinctly depressed on apical margin of 1 and base and apex of 2.

♂. Length 9-10 mm. Differs from the ♀ as follows: Pubescence longer, the black thoracic hairs almost wanting; clypeus more pubescent, its median sulcus generally lacking; vertex less depressed and entirely punctured; antennae nearly concolorous, joint 3 shorter than 4 or 5, the proportion being 4:5:5, the median flagellar joints not longer than broad; prothoracic spine shorter; malar space about one-half as long as broad; anterior femora with a few long hairs; basal joint of hind tarsi three times as long as broad, middle joints one and one-half times as long as broad.

Genitalia.—Stipes notched, its apex poorly defined, very small; sagittal rods parallel and expanded apically into subtriangular lobes; volsella very large, over one-half as long as sagitta; seventh ventral plate small, largely membranous, thinly haired except on margins where it is glabrous, externally with a blunt lateral lobe-like prolongation probably representing the external costa. (Plate 1, figures 2 and 2*a*.)

TYPE LOCALITY.—Carlinville, Illinois; types in collection of Mr. Charles Robertson.

The unique puncturation of the clypeus is the best character for readily recognizing either sex of this species. *C. willistoni* is allied, though not closely, to *C. latitarsis,* and has remarkably similar habits. Mr. Robertson gives its season in Illinois as May 28 to September 5, and points out that it visits *Physalis* with *latitarsis,* but does not enjoy so long a season, which is also an earlier one, and is not so common as *latitarsis.* In Nebraska, *willistoni* flies from the last few days in May to the first of September, being commonest from late July to late in August, and I have captured it along with *latitarsis* on *Symphoricarpos* and *Melilotus* during late June and early July, but it seems to disappear before the goldenrod flourishes and is by far the most common at flowers of *Physalis.* In Texas it begins to fly in early April. Its range is a broad one, from the Atlantic coast (Washington, D. C.) west to Sioux county, Nebraska, and south to central Texas (Fedor), but it is apparently not an abundant species anywhere.

SPECIMENS EXAMINED—District of Columbia: Washington, 1; Nebraska: Lincoln, 15; Glen, 1; Warbonnet Canyon, 6; Texas: Fedor, 1.

Colletes latitarsis Robertson.

1891. *Colletes latitarsis* Robertson, *Transactions of the American Entomological Society,* xviii, p. 60, ♀ ♂ (April, 1891); original description.

1904. *Colletes willistoni* Pierce, *University of Nebraska Studies,* iv, p. 24, (April, 1904); recorded from Lincoln, Nebraska.

1904. *Colletes latitarsis* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 275, ♀, pp. 276–77, ♂ (September, 1904); in table of Illinois species.

1906. *Colletes latitarsis* Robertson, *Science,* xxiii, p. 309 (February, 1906); season, food plant.

♀. Length 11-12 mm. Eyes slightly converging below. Clypeus bare, with coarse, strong, elongated punctures running into conspicuous parallel striae on the sides, the middle with a broad median longitudinal sulcus in which the punctures are less coarse and not striate, but still strong and dense. Supraclypeal area punctured marginally, medially impunctate. Face above and on sides of clypeus with short, whitish pubescence. Vertex almost bare but fringed with a few black hairs, the space between ocelli and eyes and behind ocelli finely roughened with minute, weak punctures changing abruptly to large, close, deep punctures before ocelli. Cheeks finely and weakly punctured, with long, sparse white hairs, the occiput with shorter but denser white hairs. Malar space short, about one-sixth as long as broad. Antennae black with the flagellum bright testaceous beneath, joint 3 longer than 4, two-thirds as long as 4+5, the proportion being 4:3:3. All the joints are shorter than wide except first three, scape punctured. Prothoracic spine well formed and sharp. Mesothorax with close, strong punctures not sparser on the disk, the pubescence very short and sparse, mostly black on the disk, becoming white on the margins. Entire scutellum closely, coarsely punctured, with a posterior border of short black hairs followed behind by white ones. Postscutellum finely roughened, with very sparse, long, white hairs. Superior face of metathorax with a series of shining subquadrate pits, almost square medially, half as wide as long laterally. Enclosed space on posterior face shining, funnel-shaped, the neck twice as long as broad at base. Lateral faces of posterior plate dull, rather coarsely roughened, bearing abundant long, white hairs. Mesopleura with large, close, deep punctures, and sparse, moderately long, white hair. Tegulae black. Wings hyaline, nervures deep rufo-testaceous, stigma blackish. Legs stout, with rather short whitish pubescence, somewhat longer on anterior femora, denser on posterior tibiae, the basal joint of hind tarsi unusually broad, its length only about

twice its width or less. Claws dark rufous, medially toothed. Tibial spurs short, dark, not distinctly pectinate. Anterior coxae unarmed. Abdomen stout, subconical, shiny black, its basal truncation polished and slightly punctured, elsewhere coarsely, densely punctured, densest on segment 2, being feebly punctured on apical segments, its base with short, erect, white hairs and apical margins of segments 1-4 with narrow, white fasciae not distinctly continued on venter, and very short, inconspicuous pale fuscous hairs between. Segment 5 not distinctly fasciate but sometimes with a fringe of pale hairs, and together with apex covered abundantly with black bristles intermixed with a few shorter pale ones. Apical margin of segment 1 and both basal and apical margins of segment 2 more or less depressed, at least laterally. Venter with long, pale, scattered hairs, denser on apical margins of segments.

♂. Length 10-11 mm. Differs from the ♀ as follows: Pubescence longer and paler; the clypeus with a few, short, pale hairs, the mesothorax with very few dark hairs among the white ones, but the scutellum with a conspicuous posterior border of them, the anterior femora with a remarkable fringe of elongated, dense white hairs forming a conspicuous beard as long as or longer than the joint itself; malar space about one-third as long as wide; antennal joints beyond 5 subequal in length and breadth, joint 3=5 but exceeding 4, the proportion being 4:3:4; basal joint of hind tarsi with its posterior edge lengthened into a stout apical lobe, middle joints of hind tarsi as wide as long.

Genitalia.—Stipes notched, its apex long and curved; sagittal rods slender, straight, moderately spatulate at tips which are not divergent; volsella moderate; seventh ventral plate large, the lobes elongate, spoon-shaped, the internal costa adherent and densely fringed the entire length of the lobe, which has the external terminal portion recurved, the external costa modified to form a lateral cordate lobe, purely membranous and with the outer half thinly haired. (Plate 1, figures 3 and 3*a*.)

TYPE LOCALITY.—Carlinville, Illinois; types in collection of Mr. Charles Robertson.

This species is characterized strongly by the great breadth of the tarsi postici. Mr. Robertson originally described it from ten specimens, half of each sex, taken from July 9 to September 20 at Carlinville on *Physalis virginiana, Asclepias incarnata,* and *Polygonum hydropiper.* The season he now gives for the species is June 13 to September 29 and records it as visiting chiefly *Physalis.* The bee is a common and widely distributed one, ranging from the Atlantic coast (Washington, D. C.) west to the Rocky mountains (Colorado Springs, Colorado, and Sioux county, Nebraska) and north to southern Wisconsin (Milwaukee). In Ne-

braska it flies during the summer and early autumn, commencing to appear in middle June from when it may be found commonly until middle September, the 22d of that month being the latest date I have found it. In the earlier part of its season of flight (during July) it occasionally visits such flowers as *Symphoricarpos occidentalis, Ceanothus americana,* and *Melilotus alba,* and in the latter portion (middle and latter September) it is common on *Solidago rigida,* but by far the most preferred food plants are the several species of *Physalis,* upon which it is common throughout their season.

SPECIMENS EXAMINED—Colorado: Colorado Springs, 1; District of Columbia: Washington, 1; Illinois: Carlinville, 2; Kansas: Baldwin, 8; Dickinson county, 2; Clay county, 1; Wellsville, 1; Nebraska: Lincoln, 13; West Point, 2; Nebraska City, 2; Glen, 1; Warbonnet Canyon, 1; Virginia: Falls Church, 1.

Colletes banski n. sp.

♀. Length 11 mm. Resembling *C. latitarsis* but differing from that species as follows: Pubescence paler, the black thoracic hairs practically confined to a few on the sides of the scutellum; clypeus with coarse but well-separated punctures, striate only marginally, broadly sulcate medially, subimpunctate on apical margin; malar space much longer, about one-half as long as broad; mesothorax with sparse strong punctures, sparser on a large disk, scutellum with a basal impunctate line, closely punctured posteriorly; neck of enclosure shorter and broader; nervures and stigma paler, brownish; basal joint of hind tarsi about three times as long as wide; segment 1 of abdomen finely but closely punctured.

♂. Unknown.

TYPE LOCALITY.—Falls Church, Virginia; type in collection of the author.

Though closely related to *latitarsis,* this species is much more distinct from it than either *crawfordi* or *chamaesarachae,* and is easily distinguished from any of the three by the longer malar space. The unique type was collected July 4 by Mr. Nathan Banks in whose honor I have named the species.

SPECIMENS EXAMINED—Virginia: Falls Church, 1.

Colletes crawfordi Swenk.

1906. *Colletes crawfordi* Swenk, *Entomological News,* xvii, pp. 257–58, ♀ (September, 1906); original description.

♀. Length 8-9 mm. Closely allied to *C. latitarsis* but much smaller; clypeus broadly medially sulcate with the punctures coarse but well separated, and the surface but slightly striate; pubescence paler, the vertex without black hairs and those on thorax much reduced; outer spur of hind tibiae pectinate with about a dozen long teeth; basal joint of hind tarsi longer, fully three times as long as broad.

♂. Unknown.

TYPE LOCALITY.—Dallas, Texas; type in collection of the author.

The type was collected October 8, 1905, on *Physalis,* and I have since examined two metatypes from San Angelo, Texas, collected September 27, on the same flower. The season and food plant thus correspond with those of the closely related and better known species, *latitarsis.*

SPECIMENS EXAMINED—Texas: Dallas, 1; San Angelo, 2.

Colletes chamaesarachae Cockerell.

1897. *Colletes chamaesarachae* Cockerell, *Annals and Magazine of Natural History,* series 6, xix, pp. 49–50, ♀ (January, 1897); original description.

1897. *Colletes chamaesarachae* Cockerell, *Bulletin of the New Mexico Experiment Station,* no. 24, p. 19 (August, 1897); recorded from Santa Fé, New Mexico, on basis of type.

1898. *Colletes chamaesarachae* Cockerell, *Bulletin of the Scientific Laboratories of Denison University,* xi, p. 43, ♀ (November, 1898); in table of New Mexico species.

1906. *Colletes chamaesarachae* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 292 (October, 1906); recorded from Santa Fé, New Mexico, on basis of type.

♀. "Length about 10 mm. Black, with short, dull grey pubescence. Head tolerably broad; eyes not bulging at top; face and cheeks with sparse gray pubescence; clypeus bare, shining, strongly but not very densely punctured; sides of vertex sparsely punctured, shining; a broad dull groove in front of the upper part of each eye; labrum with a deep median longitudinal furrow; mandibles stout, rounded at tips, the notch near the end; space between mandible and eye very short; flagellum dark brown beneath from the third joint to the end, its second joint shorter than the third and only half as long as the first. Prothoracic spine rather short, but very slender and sharp. Mesothorax with very large close punctures, absent on

the disk. Anterior half of scutellum impunctate, posterior half with large punctures. Base of metathorax divided by ridges into quadrate spaces which are longer than broad. Lateral faces of posterior truncation irregularly and obscurely reticulate, dullish because microscopically lineolate or subreticulate. Pleura closely punctured, subcancellate. Thoracic pubescence short and rather sparse, dull yellowish grey, or, one might say, pale greyish ochreous. Tegulae shining piceous, not noticeably punctured. Wings hyaline, nervures piceous, stigma fuscous. Legs with mouse-colored pubescence; tarsi dark; tibial spurs dark brown; hind spur of hind tibia pectinate, with about fifteen teeth. Inner tooth of claw short, diverging from the outer. Abdomen rather narrow, subconical, moderately shiny, punctuation of first segment fine but strong and rather close, of the remaining segments minute and obscure. Base of first segment sparsely hairy; hind margins of segments 1 to 4 with bands of whitish pubescence; second segment very feebly pubescent at extreme base. Venter with rather abundant fairly long mouse-gray pubescence." (Original description). [Hair of thorax with some fuscous hairs intermixed on mesothorax and scutellum; spurs piceous; mesothorax with a large, shining impunctate space.—T. D. A. Cockerell.]

♂. Unknown.

TYPE LOCALITY.—Santa Fé, New Mexico; type in collection of Professor T. D. A. Cockerell.

The type was taken at flowers of *Chamaesaracha coronopus* on August 2, and remains unique. The species is certainly very close to *C. crawfordi,* but Professor Cockerell on comparing a metatype of *crawfordi* with the type of *chamaesarachae* says they are not the same and separates them by the characters given in the table. It is noteworthy that this third member of the *latitarsis* group also visits a solanaceous plant.

Colletes skinneri Viereck.

1903. *Colletes skinneri* Viereck, *Transactions of the American Entomological Society,* xxix, pp. 58–59, ♀ ♂ (January, 1903); original description.

1905. *Colletes skinneri* Cockerell, *Psyche,* xii, p. 86, ♂ (October, 1905); in table of species.

1906. *Colletes skinneri* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 291; recorded from Beulah, New Mexico.

♀. **Length** 10-11.5 mm. Clypeus flat, shining, its punctures large and elongate, running into conspicuous striae, somewhat depressed medially. Supraclypeal area convex, opaque, coarsely punctured, anteriorly distinctly

carinate. Front with crowded, good-sized punctures, its pubescence short, erect, grayish white. Antennae black, joint 3 exceeding 4 or 5, the proportion being 5:3:4, following joints about as broad as long. Cheeks shiny, closely and distinctly punctured, clothed with long, white hair. Malar space striate, about three-fifths as long as broad. Prothoracic spine moderate but distinct and sharp. Mesothorax with coarse, crowded, or even semi-cancellate punctures, well separated on a small shining disk, the mesopleura punctured like the disk. Entire scutellum coarsely punctured, postscutellum finely and densely punctured. Superior face of metathorax well-defined, the pits large and shiny, square medially only. Enclosure funnel-shaped, the bowl coarsely transversely rugose, the rugae more or less completely interrupted in a median line, the neck smooth, concave, and polished, twice as long as wide. Sides of metathorax and areas surrounding enclosure opaque, minutely punctured. Pubescence of thorax above grayish white mixed with black, these forming a decided scutellar fringe. A fringe from insertion of wings to and including postscutellum, sides of metathorax and mesopleura with long, pale hairs. Tegulae black. Wings hyaline, nervures and stigma dark brown. Legs black with grayish white pubescence, the inner tarsal apices with golden brown tufts, the basal joint of hind tarsi four and one-half times as long as broad. Anterior coxae simple. Claws ferruginous, medially toothed. Spurs of hind tibiae pale testaceous, the outer ones very finely pectinate. Abdomen shining, suboval, segment 1 polished, with a small, close, distinct puncturation, closest laterally and becoming sparser toward a median subimpunctate line, segment 2 uniformly more finely punctured, following segments indistinctly punctured, apex roughened. Base of abdomen with only a few white hairs and those mostly along the sides, apical margins of segments 1-4 with distinct, narrow, white fasciae, the first one interrupted medially, segment 5 merely fringed. Disks of segments with short, scattered pale hairs, on segments 4-6 with longer black bristles interspersed.

♂. Length 9.5 mm. "Quite similar to the ♀ in appearance, sculpture and wing structure, the dorsal hairs paler, the punctuation of the abdominal segments coarser." [Malar space about as long as broad.—T. D. A. Cockerell.]

TYPE LOCALITY.—Beulah, New Mexico; types in collection of Philadelphia Academy of Natural Sciences.

The types of this species were collected at Beulah, a female in 1901 by Dr. Skinner, for whom the species was named, and a pair on August 18 by Professor Cockerell. I have examined three females collected at the same time as the pair, thus being of the same lot, but have as yet seen no males, so can not illustrate the armature and seventh ventral plate of this species. I wish to

record also a female collected west of Beulah, August 23, by Mrs. Wilmatte P. Cockerell.

SPECIMENS EXAMINED—New Mexico: Beulah, 4.

Colletes gilensis Cockerell.

1897. *Colletes gilensis* Cockerell, *Annals and Magazine of Natural History,* series 6, xix, pp. 41–42, ♂ (January, 1897); original description.

1907. *Colletes gilensis* Cockerell, *Bulletin of the New Mexico Experiment Station,* no. 24, p. 21 (August, 1897); recorded from Gila river on basis of types.

1898. *Colletes gilensis* Cockerell, *Bulletin of the Scientific Laboratories of Denison University,* xi, p. 42, ♂ (November, 1898); in table of New Mexico species.

1899. *Colletes gilensis* Cockerell, *The Entomologist,* xxxii, p. 155, ♂ (July, 1899); recorded from Prude's Summit, White Mountains, New Mexico.

1901. *Colletes gilensis* Cockerell, *Annals and Magazine of Natural History,* series 7, vii, p. 125, ♀ (January, 1901); recorded from Las Vegas and La Cueva, New Mexico; palpi of ♀ described.

1904. *Colletes gilensis* Cockerell, *The Entomologist,* xxxvii, p. 6, ♀ (January, 1904); recorded from Pecos, New Mexico.

1905. *Colletes gilensis* Cockerell, *Psyche,* xii, p. 87, ♂ (October, 1905); in table of species.

1906. *Colletes gilensis* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 292 (October, 1906); summary of above records.

♀. Length 13-15 mm. Very large and stout. Clypeus slightly convex, medially flattened, its apex decidedly emarginate, its surface shiny and very coarsely striate punctate. Supraclypeal area medially impunctate. Vertex shining, very distinctly double punctured with sparse, fine punctures and a few large ones, its pubescence pale except for a black tuft in interocellular space. Antennae black, joint 3 longer than 4 or 5, the proportion being 6:4:5, the following joints about as long as broad. Cheeks shiny, sparsely and finely punctured, sparsely grayish white pubescent. Malar space very short, about one-sixth as long as broad, striate. Prothoracic spine well formed and sharp. Punctures of mesothorax round and coarse, very crowded except on a shining disk where they are abruptly sparse. Scutellum anteriorly shining and punctured like disk of mesothorax, the posterior half dull and finely densely punctured, as is also the postscutellum. Mesopleura punctured like dorsum of mesothorax. Superior face of metathorax rather poorly defined, the pits generally irregular, narrow, and elongate, the enclosure funnel-shaped, its base trans-

versely rugose and with a feeble median line, the neck very narrow, concave and polished, the surrounding areas and lateral faces opaque, minutely punctured and feebly reticulated; the sculpture of the metathorax thus almost exactly as in *skinneri*. Pubescence of thorax above grayish tinged with ochreous and much mixed with black, with the usual dense fringe of this color on scutellum. Post-tegular line, postscutellum, meso- and metapleura with long whitish pubescence. Tegulae black. Wings long, somewhat darkened, nervures and stigma blackish. Legs black, clothed with whitish pubescence with the usual reddish tarsal tufts, basal joint of hind tarsi three and one-third times as long as broad. Anterior coxae without distinct spines. Claws ferruginous and deeply medially toothed. Tibial spurs dark testaceous, outer posterior ones finely pectinate. Abdomen very large and stout, subconical, first segment shining, with coarse, round, deep punctures separated the width of one or less, these becoming finer and denser on the depressed apical margin, medially with a subimpunctate line. Segment 2 more finely punctured, very finely so on the depressed basal and apical margins, 3 and following finely and irregularly punctured, the apical margins of 3 and 4 depressed. Fasciae narrow, white, on apices of 1-5 and base of 2, all complete, segment 1 with erect, long, sparse, gray hair, following segments with very short, scattered, dark hairs, longer on apex.

♂. Length 15 mm. Differs from the ♀ as follows: Pubescence longer and denser, the clypeus covered with a dense, ochreous gray, silky beard; antennae with joint 3 shorter than 4 or 5, the proportion being 4:6:7, the median flagellar joints one and three-fifths times as long as broad; malar space longer, about three-eighths as long as broad; base of segment 2 not fasciate; basal joint of hind tarsi four times as long as broad.

Genitalia.—Stipes notched, its apex very small, hairy, its basal and middle joint very stout; sagittal rods very stout, gradually tapering from base to the divergent apices, their axes converging except at apex; volsella moderate; seventh ventral plate fan-shaped and prolonged externally into recurved processes, each bearing a long slender chitinous hook on the lower angle, internal costa with long dense hair, external costa subglabrous, lobes subuniformly sparsely hairy. (Plate 1, figures 4 and 4*a*.)

TYPE LOCALITY.—West Fork of Gila river, New Mexico; cotypes in collection of Professor Cockerell and Philadelphia Academy of Natural Sciences.

This large, striking species was described by Professor Cockerell from two male cotypes collected July 16 by Mr. C. H. T. Townsend. Later he published additional records; a male from Prude's Summit, White Mountains, July 29, 1898 (C. M. Barber), three females July 21 and three females August 1, from

Las Vegas, two females from Gallinas river at La Cueva, August 6, and a female from Pecos, August 7. I have examined three females from Las Vegas, collected August 9, 10, and 11 by Mrs. Wilmatte P. Cockerell, and four specimens from Arizona—a pair taken in Oak Creek canyon in August by Professor F. H. Snow and two females taken during August, 1902, in southern Arizona by the same collector. Apparently, then, the species is aestival (July 16 to August 11) and rather a Transition form. It visits the flowers of *Petalostemon oligophyllus, Solidago canadensis,* and *Melilotus alba.*

SPECIMENS EXAMINED—Arizona: Oak Creek Canyon, 2; Southern Arizona, 2; New Mexico: Las Vegas, 3.

Colletes compactus Cresson.

1868. *Colletes compacta* Cresson, *Proceedings of the Boston Society of Natural History,* xii, p. 166, ♀ ♂ (December 2, 1868); original description.

1879. *Colletes compacta* Patton, *Ibid.*, xx, p. 142, ♀ ♂ (April, 1879); in table of New England species.

1895. *Colletes compacta* Robertson, *Transactions of the American Entomological Society,* xxii, p. 115 (May, 1895); notes on characters and season.

1896. *Colletes compactus* Dalla Torre, *Catalogus Hymenopterorum,* x, p. 38 (1896).

1903. *Colletes compactus* Viereck, *Entomological News,* xiv, p. 120 (March, 1903); recorded from College Park, Maryland.

1904. *Colletes compactus* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 275, ♀, p. 277, ♂ (September, 1904); in table of Illinois species.

1905. *Colletes compacta* Cockerell, *Psyche,* xii, p. 86, ♂ (October, 1905); in table of species.

1906. *Colletes compactus* Robertson, *Science,* xxiii, p. 309 (February, 1906); seasons, food plants.

1907. *Colletes compactus* Lovell, *Canadian Entomologist,* xxxix, no. 11, p. 363 (November, 1907); recorded from Waldoboro, Maine.

♀. Length 10-12 mm. Head broad, orbits slightly converging below. Clypeus flat, its punctures coarse and elongate but separate and not forming striae except at extreme sides, becoming obsolete on a large, broad, median sulcus which is dull because of a minutely longitudinally striate surface. Supraclypeal area dull and coarsely punctured. Face finely and closely punctured, clothed with short, erect, grayish white pubescence with a few black hairs intermixed along the sides and becoming denser above

antennae. Vertex shiny, with many very fine punctures and a few large ones, clothed with a few long, erect hairs, almost all of them black, the occiput with a rather dense fringe of short, pale hairs. Cheeks shiny, closely and regularly punctured, their pubescence long and grayish white. Malar space short, one-third as long as broad, dull and minutely striate. Antennae wholly black, joint 3 decidedly longer than 4 or following joints, which are as long as wide. Prothoracic spine obsolete. Pubescence of thorax gray and black intermixed, the latter usually predominating, short and sparse centrally, longer and denser on the margins and forming a long, erect, black fringe on scutellum, followed by a pale one on postscutellum. Mesothorax with strong, crowded, often semi-striate punctures which become coarser and well-separated on a small shiny disk. Anterior half of scutellum polished and impunctate, posterior half with scattered, coarse punctures and the margin abruptly dull and finely roughened, as is also the postscutellum. Metathorax rounded and lacking the usual pitted superior face, the enclosure broadly subtriangular, somewhat shiny, roughened by coarse transverse plications over all except the apex. Lateral faces of posterior plate dull and finely roughened. Mesopleura shiny, with coarse, round, well-separated punctures and sparse, gray pubescence. Tegulae blackish. Wings slightly darkened, nervures blackish, stigma dusky. Legs black, the inner surface of the femora shining, clothed with a pale pubescence, the apices of tarsal joints with golden tufts within. Anterior coxae simple. Tibial spurs pale, the outer hind ones minutely pectinate. Posterior tarsi slender, basal joint one-third as wide as long, middle joints one and two-thirds as wide as long. Abdomen stout, elongate conical, shiny, the first segment with the basal truncation polished and impunctate, elsewhere with small, close, deep punctures and larger ones scattered about between. Second segment punctured like the first but with the two sizes less distinct, the third and following segments weakly and indistinctly punctured, and with short, scattered, blackish hairs. Ventral valve of apex bicarinate. Apical margins of segments 1-3 depressed, especially on segment 1, and a narrow, loose fascia of white pubescence on apical margins of segments 1-5 as well as one on base of segment 2, which connects the interrupted fascia on apex of 1. The apical fasciae are continued narrowly on venter. Segment 1 with sparse, pale, erect hairs, denser down its sides and on sides of segment 2.

♂. Length 9-10 mm. Differs from the ♀ as follows: More slender, pubescence longer, denser, and less intermixed with black (the black hairs wanting in Colorado and Arizona specimens), that on face extending down on clypeus, that on vertex mostly pale, that on thorax above largely pale; eyes strongly converging below; clypeus shining and bearing but a few scattered, coarse punctures, the median depression narrow and deep; malar space much longer, five-sixths as long as broad, rather coarsely striate; antennae longer, joint 3 shorter than 4 but longer than 2, the proportion being 5:7:8, median antennal joint five-eighths as wide as long; punctures

of mesothorax close but quite separate; apical tarsal joints brownish; pectination of tibial spurs indistinct; abdomen slender and elongate, its puncturation close and quite coarse, the first segment rather abundantly pilose, the third segment distinctly punctured; ventral valve of apex not bicarinate; fasciae on apical margins of segments 1-6, indistinct on base of segment 2, distinctly continued on venter; hind tarsi more slender, basal joint four and one-half times as long as wide, middle joints twice as long as wide.

Genitalia.—Stipes notched, its apex small, claw-like and heavily haired; sagittal rods parallel throughout, abruptly much thickened from base to middle; volsella rather large; seventh ventral plate with costae heavily chitinized and connected by a transparent, sparsely haired, membranous central portion, the internal costae heavily fringed externally, the external costae oblong, heavily haired and with dense externo-terminal tufts. (Plate 1, figures 5 and 5*a*.)

TYPE LOCALITY.—Connecticut; types in collection of American Entomological Society.

The peculiar sculpture of the metathorax easily distinguishes *compactus,* especially when taken with the bicarinate apex of the females and the subquadrate malar space of the males. Mr. Cresson had cotypes from both Connecticut and Illinois, but I have considered the former locality as most typical of the species, which is a wide ranging one. Present information shows a distribution from southern Maine (Waldoboro) and New Hampshire (Pelham) south through New Jersey, Pennsylvania, Maryland, and Virginia to Georgia (Atlanta), and west to Wisconsin (Milwaukee), eastern Nebraska (Lincoln and West Point), Colorado, and Arizona (Southern Arizona). The southwestern specimens are conspicuous by their pallor and the reduction of the black thoracic hairs, these being entirely absent in the males. It is distinctively an autumnal species, flying in the North Atlantic states from August 31 to October 14 and reaching its maximum abundance during latter September and early October. Robertson gives its season in southern Illinois from August 26 to October 19, and says it is oligotropic on *Compositae.* In the East it is found most frequently on the various species of goldenrod (*Solidago*), and is a common species, though outnumbered by *americanus* and *armatus.*

SPECIMENS EXAMINED—Arizona: Southern Arizona, 1; Colorado: 3; Georgia: Atlanta, 1; Illinois: Carlinville, 2; Maine:

Waldoboro, 3; Maryland: College Park, 1; Nebraska: Lincoln, 2; West Point, 3; New Hampshire: Pelham, 2; New Jersey: Chester, 3; Clementon, 3; Ohio: Columbus, 3; Pennsylvania: Fern Rock, 4; Germantown, 9; Ogontz, 1; Virginia: Falls Church, 1.

Colletes compactus hesperius Swenk.

1906. *Colletes hesperius* Swenk, *Entomological News,* xvii, p. 257, ♀ ♂ (September, 1906); original description.

♀. Like *C. compactus* ♀, but much larger, 14 mm. long; the pubescence much paler and rather more abundant, the hairs of face, vertex and occiput all pale, the pubescence of thoracic dorsum pale dull gray with the black hairs comparatively few, sparse on the disk and forming a rather thin scutellar fringe; first abdominal segment uniformly very finely, closely and weakly punctured, very different from the heavy, close, double-sized puncturation of typical *compactus,* segment 2 minutely and indistinctly punctured; abdominal fasciae much broader.

♂. Like *C. compactus* ♂, but larger, 11 mm. long; pubescence entirely grayish white except for a very few pale brownish hairs on scutellum; fasciae much broader. Genitalia similar in all essential respects.

TYPE LOCALITY.—Almota, Whitman county, Washington; types in collection of the author.

This form is different enough externally from eastern *compactus* to suggest specific distinctness, but the armatures and seventh ventral plates are so similar that I do not feel warranted in continuing to consider them as two species. In addition to the type pair I have examined a female from Oregon, the exact locality, however, not being known.

SPECIMENS EXAMINED—Oregon, 1; Washington: Almota, 2.

Colletes inaequalis Say.

1837. *Colletes inaequalis* Say, *Boston Journal of Natural History,* i, no. 4, pp. 391–92, ♀ ♂ (May, 1837); in LeConte's *Writings of Thomas Say,* ii, pp. 770–71 (1859); original description.

1868. *Colletes propinqua* Cresson, *Proceedings of the Boston Society of Natural History,* xii, pp. 165–66, ♀ ♂ (December 2, 1868); original description.

1868. *Colletes canadensis* Cresson, *Ibid.,* pp. 166–67, ♂; original description.

1879. *Colletes inaequalis* Patton, *Ibid.,* xx, pp. 142–43, ♀ ♂ (April, 1879); synonmy, redescription.

1895. *Colletes inaequalis* Robertson, *Transactions of the American Entomological Society,* xxii, p. 115 (May, 1895); synonmy, season of flight, etc.

1900–01. *Colletes compacta* J. B. Smith, *Journal of the New York Entomological Society,* viii, p. 208, and ix, pp. 30–36 (September, 1900, and March, 1901); burrows, habits, etc.

1901. *Colletes inaequalis* Cockerell, *Ibid.,* ix, p. 132 and p. 134, ♀ ♂ (September, 1901); recorded from Lahaway and Newark, New Jersey, collected by J. B. Smith.

1904. *Colletes inaequalis* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 275, ♀, p. 277, ♂ (September, 1904); in table of Illinois species.

1905. *Colletes inaequalis* Cockerell, *Psyche,* xii, p. 86, ♂ (October, 1905); in table of various species.

1906. *Colletes inaequalis* Robertson, *Science,* xxiii, p. 309 (February, 1906); season.

1906. *Colletes inaequalis* Britton and Viereck, *Report of the Connecticut Agricultural Experiment Station* for 1905, part iv, pp. 210, 214, 215 (1906); taken on *Ribes* and *Prunus.*

1907. *Colletes inaequalis* Lovell, *Canadian Entomologist,* xxxix, no. 11, p. 364 (November, 1907); recorded from Waldoboro, Maine.

♀. Length 12-13 mm. Head short and broad, the eyes converging. Clypeus uniformly slightly convex, shiny, sparsely covered with short, soiled gray pubescence, its surface roughened by deep, subparallel striae in which lie coarse, shallow punctures. Supraclypeal area punctured. Face and cheeks with much finer, very close punctures and moderately long and dense, erect, grayish white pubescence. Vertex finely punctured with two sizes, laterally almost bare, centrally with sparse, long, pale and blackish hairs intermixed. Antennae wholly dark, minutely punctured, joint 3=4, the following joints about as long as broad. Malar space finely striate punctate, about three-tenths as long as wide. Prothoracic spine lacking. Thorax dorsally covered with a tolerably dense, erect, gray or pale ochraceous-gray pubescence, conspicuously mixed with dark brown to black hairs, especially on the scutellum. Mesopleura with long whitish pubescence and uniformly coarse, close, shallow punctures. Mesothorax moderately shiny with round, strong, rather large punctures, very close except upon the disk where they are rather sparse. Median and lateral impunctate grooves present, the former deeply impressed. Scutellum at extreme base shining and impunctate or with only a few scattered punctures, after which it is coarsely striate punctate on a dull surface. Postscutellum crowded with fine, dense punctures, forming a dull, rough surface. Superior face of metathorax defined by a weak angulation, shiny, crossed by numerous crooked ridges which laterally become straight enough to form irregular pits half as wide as long. Posterior plate with long pale hairs, its sides dull, minutely roughened and sparsely pitted, the enclosure

small, almost T-shaped because of the uniformly very narrow base, which is ridged laterally, and the very narrow downward prolongation. Tegulae dark. Wings long, slightly darkened, nervures ferruginous to dark brown, stigma dark ferruginous. Legs black, clothed with grayish white pubescence, longer and denser on posterior femora and tibiae, inner tarsal apices with golden tufts. Basal joint of hind tarsi slender, over three times as long as broad, intermediate joints two and one-half times as long as broad. Anterior coxae unarmed, claws medially toothed, hind spur of hind tibiae finely cilio-pectinate, all the spurs reddish. Abdomen stout, suboval, segment 1 with the punctures rather large and well-separated, becoming finer and very close apically, and bearing long, sparse, gray hairs which form a short, denser fringe down the lateral margin; segment 2 and following uniformly much more finely and closely punctured than 1, with short, sparse, gray hairs mixed with a few scattered, dark ones on segments 3-6. Apical margins of segments 1-5 with fasciae of whitish hair, narrow and generally worn on 1 and 2, broader on following, all narrowly continued on venter, the apical margins not depressed.

♂. Length 10-12 mm. Differs from the ♀ as follows: Pubescence longer, that on clypeus long and dense, whitish; black dorsal hairs on thorax reduced, confined to scutellum; anterior femora thinly bearded with long hair; antennae long, reaching beyond tegulae, joint 3 about five-sevenths of 4, middle joints five-sevenths as broad as long; abdomen more densely punctured, fasciae on segments 1-6 continued more narrowly on venter; hind tarsi narrow, their basal joints five times as long as broad, intermediate joints over twice as long as broad.

Genitalia.—Stipes notched, its apex flat and broad; sagittal rods parallel, thickened on basal two-thirds; volsella moderate; seventh ventral plate with costae, both internal and external, widely detached from the lobes; the external costa falciform and detached for one-half its length, equaling the lobe in length, the internal costa clavate and separated nearly its entire length. (Plate 1, figures 6 and 6*a*.)

TYPE LOCALITY.—Indiana; type lost.

This was the first *Colletes* to be described from North America. It was characterized and named by Say in 1837 from specimens taken in Indiana. His description being rather short and general, some confusion as to the correct identity of his species resulted from the loss of the type, so that Mr. Cresson redescribed it in 1868 under the name *propinqua*, doubtfully identifying another species (*armatus* Patton) as *inaequalis*. Eleven years later Mr. Patton placed it under its proper name, showing *propinqua* to be a synonym, and redescribed Cresson's *inaequalis* as *armata*. Mr. Charles Robertson, in corroboration of Patton's identification of

inaequalis, wrote in 1895: "Say says that his species flies in March and April. I have taken it from the 20th of March to the 28th of May, while the species which Cresson has doubtfully referred to *C. inaequalis* I have taken only from the 30th of August to the 7th of October. This early species which agrees with Say's description of *C. inaequalis,* I have compared with the types of *C. propinqua* in the collection of the American Entomological Society. I have also examined the types of *C. canadensis.* A specimen which Mr. Cresson doubtfully referred to *C. canadensis* is nothing, I think, but *C. inaequalis.*" At my request Mr. Viereck kindly compared the types of *propinqua* and *canadensis* and he also considers them as quite identical.

This species enjoys a particularly broad range, occurring throughout the United States and southern Canada east of the Rocky mountains, giving place on the south Atlantic seaboard and along the Gulf to a red-colored variety. In the light of the material at hand, typical *inaequalis* may be said to range from southern Maine (Waldoboro), central New Hampshire (Hanover), southern Michigan (Grand Rapids), and southern Wisconsin (Milwaukee) west to western Nebraska (Sioux county, Halsey), eastern Kansas (Baldwin), eastern Oklahoma (Ardmore) and northeastern Texas (Wolf City), and south to northern Virginia (Falls Church) and southern Illinois (Carlinville); but doubtless additional material would extend its range considerably to the southward. It is a vernal species, flying in Nebraska from April 6 to May 20 and reaching its maximum abundance during the last week in April and the first in May. It visits the flowers of a great variety of trees and shrubs, including the various species of the genera *Acer, Prunus, Salix, Ribes,* and *Rubus,* and several early flowers such as *Anemone virginiana* and *Lomatium foeniculaceum* as well. In southern Illinois Robertson says this species flies from March 20 to May 31 and is polytropic. In New England the season is March 26 to June 5, and the bee is most numerous from April 20 to May 15, and occurs on *Claytonia virginica, Caltha palustris, Dendrium buxifolium, Taraxacum* and *Dentaria,* but is most abundant on wild plum and willow. Occasionally individuals of this species emerge in the fall—

I have examined two females from Grand Rapids, Michigan, labeled "11-19-1889," a female from Durham, New Hampshire, taken October 5, 1899, on *Aster,* and a male taken at Germantown, New Jersey, "11-1-1905," by Mr. H. S. Harbeck. These autumnal specimens are, however, rare, and are to be viewed as abnormally accelerated individuals rather than indicating a fall brood of the species.

The biology of this *Colletes* has been very well worked out by Dr. J. B. Smith in his papers in the *Journal of the New York Entomological Society,* so that any observations by the writer would be largely repetition. The majority of our *Colletes* species probably conform to the general life history there described, though probably few dig so deep as twenty-four to forty inches. Indeed, Mr. Viereck has sent me specimens of *C. aestivalis* Patton taken by Dr. H. C. McCook and himself at Devon, Pennsylvania, which were only about four inches below the surface of the field. In Nebraska the nests of *inaequalis* are like those observed by Dr. Smith. The identification of his specimens as *C. compacta* was of course an error, as the latter is a strictly fall species; but to remove all question I have examined specimens collected by Dr. Smith in his investigations, and find them to be *C. inaequalis,* as anticipated.

SPECIMENS EXAMINED—Connecticut: New Haven, 1; District of Columbia: Washington, 2; Illinois: Carlinville, 2; Indiana: Elkhart, 7; Kansas: Baldwin, 48; Maine: Waldoboro, 1; Michigan: Ann Arbor, 2; Grand Rapids, 2; Agricultural College, 2; Nebraska: Lincoln, 80; South Bend, 8; Ashland, 4; Cedar Bluffs, 1; Omaha, 2; West Point, 15; Neligh, 3; Halsey, 2; Sioux county, 2; New Hampshire: Durham, 16; Webster, 5; Hanover, 16; New Jersey: Riverton, 7; Colingswood, 2; Clementon, 6; Germantown, 1; Hainesport, 1; Westville, 1; Chester, 2; Prospertown, 1; Lahaway, 19; Ohio: Columbus, 44; Oklahoma: Ardmore, 2; Pennsylvania: Philadelphia, 1; Texas: Wolfe City, 3; Virginia: East Falls Church, 3; Great Falls, 7.

Colletes inaequalis ferrugineus n. subsp.

♀ ♂. Agreeing in all structural characters with typical *inaequalis,* but entire pubescence, except for the black thoracic hairs, deep rusty fulvous instead of dull gray or pale ochreous gray.

TYPE LOCALITY.—Willis, Montgomery county, Texas; types in collection of the author.

A series of thirty-one specimens collected in the type locality by Mr. J. C. Bridwell, March 12 to 16, 1903, mostly on plum blossoms, *all* have the pubescence as above described, and on first sight seem so strikingly different from ordinary *inaequalis* that one would be inclined to consider them specifically distinct. However, a close study fails to reveal any structural differences, even the male genitalia being essentially identical in the two forms, while the season of flight and flowers visited are also similar, all of which would conclusively argue that the two are conspecific. Moreover, in New Jersey the gray form seems to intergrade with the red, and specimens from that and adjacent states are often somewhat intermediate in coloration, the gray predominating but the long hairs of the metathorax, base of abdomen, posterior femora, and in the male the clypeal beard being more or less strongly ochreous, this sometimes involving the fasciae also. In some localities specimens occur fully as rusty as the Texas typical series; of two males, both taken at Hainesport, New Jersey, March 26, 1905, by Mr. E. Daecke, one is bright rusty, the other dull gray, while a precisely similar variation occurs in two males from Riverton collected by Mr. H. L. Viereck. One might be inclined to consider this difference due entirely to dichromatism were it not for the fact that among the many specimens examined from the central northern states not one approaches even remotely the rusty coloration of *ferrugineus*. I am accordingly inclined to consider it a geographical variant, probably restricted to the southern coast portion of the range of the species, or at least a form so distinct as to deserve a name.

SPECIMENS EXAMINED—New Jersey: Hainesport, 1; Riverton, 1; Texas: Willis, 31.

Colletes validus Cresson.

1868. *Colletes valida* Cresson, *Proceedings of the Boston Society of Natural History*, xii, p. 165, ♀ ♂ (December 2, 1868); original description.

1872. *Colletes valida* Cresson, *Transactions of the American Entomological Society*, iv, p. 248 (November, 1872); recorded from Dallas county, Texas, both sexes.

1879. *Colletes valida* Patton, *Proceedings of the Boston Society of Natural History,* xx, p. 142, ♀ ♂ (April, 1879); in table of New England species.

1896. *Colletes validus* Dalla Torre, *Catalogus Hymenopterorum,* x, p. 46 (1896).

1905. *Colletes valida* Cockerell, *Psyche,* xii, p. 85, ♂ (October, 1905); in table of species.

1906. *Colletes valida* Britton and Viereck, *Report of Connecticut Agricultural Experiment Station* for 1905, part iv, p. 210; recorded from New Haven, Connecticut, on gooseberry.

♀. Length 11-12 mm. Head elongate, eye orbits subparallel. Clypeus long, shining, convex, with a broad median sulcus which widens apically, its punctures very coarse but separated, finer and closer in the sulcus. Supraclypeal area duller, densely punctured marginally. Cheeks densely punctured, a little shiny, bearing white pubescence. Malar space concave, very polished, basally with a few punctures, much elongated, being one and one-half times as long as broad. Front dullish, closely and distinctly punctured, its pubescence short, erect, grayish white. Vertex dullish, finely densely punctured and with larger punctures scattered about, its pubescence long, erect, and sparse, mainly black. Antennae shining black, joint 3 decidedly longer than 4, 2+3, being twice as long as 4, the proportion being 4:6:5. Prothoracic spine rudimentary, a mere bump. Pubescence of thorax above rather long, erect, pale fulvo-ochraceous to ochraceous-gray, much mixed with black, the latter color in a dense scutellar fringe, but none on postscutellum. Punctures of mesothorax rather coarse, deep, and much crowded, somewhat sparser on a shinier disk. Scutellum coarsely punctured, densely so posteriorly, postscutellum opaque and roughened by excessively close and rather fine punctures. Superior face of metathorax defined by an angulation, the shining rectangular pits rather narrow. Enclosure funnel-shaped, the bowl narrow, slightly shiny, transversely plicate and laterally ridged, the neck rather long and narrow, concave, polished and impunctate. Lateral areas of posterior plate opaque, minutely punctured and indistinctly reticulated, clothed with long, erect, pale pubescence. Mesopleura dull, closely and coarsely punctured, their pubescence silvery, as it is on the whole under surface also. Tegulae piceous. Wings slightly darkened, nervures and stigma dark reddish brown. Legs black, clothed with grayish white pubescence, the tibiae, especially the posterior pair, with numerous short black bristles among the pale ones, the inner apices of the tarsal joints with ferruginous tufts. Anterior coxae simple. Tibial spurs pale, the hind ones not pectinate. Claws ferruginous and toothed medially. Basal joint of hind tarsi slender, two and one-half times as long as broad, median joints of similar proportions. Abdomen suboval, stout, shining, the first segment with long, erect, fairly dense, grayish white pubescence which forms conspicuous lateral fringes, its basal truncation polished and impunctate, its convexity with fine well-separated

punctures becoming close apically. Following segments similarly but more closely punctured. Apical margins of segments 1-5, with dense, even fasciae of grayish white to pale ochraceous pubescence, continued as a fringe on venter, not at all depressed. Segments 2 and 3 have a very fine and sparse, short, pale pubescence, best seen in profile, which is partially replaced on 4 and 5 by longer dark bristles. Apex rugose, with many stiff black hairs.

♂. Length 10 mm. Differs from the ♀ as follows: Clypeus flat, less distinctly sulcate, more densely and closely punctured, its surface concealed by long yellowish gray pubescence; antennae much longer, reaching beyond tegulae, joint 3 five-sevenths as long as 4 or following ones, the median joints five-sevenths as wide as long; malar space twice as long as broad; cheeks and anterior femora bearded with long pale hairs, the thoracic pubescence longer and denser, the black hairs of vertex and dorsum much fewer and largely replaced by brown ones; enclosure more shiny, almost T-shaped from the very narrow bowl and neck, merely ridged laterally; apical tarsal joints suffused with brownish; basal joint of hind tarsi very slender, over four times as long as broad, median joints over twice as long as broad; no black hairs on tibiae; segment 6 not fasciate.

Genitalia.—Stipes notched, its apex swollen, bulbous, short-haired; sagittal rods falciform, their tips abruptly divergent and exteriorly pubescent; volsella small; both internal and external costae of seventh ventral plate detached from the lobes; internal costae elongate, gradually and uniformly acuminate, externally very strongly bristled; external costae spatulate, terminally largely membranous, without bristles; lobes columnar, expanding apically into a large suboval sheet, the internal process exceeding the external. (Plate 2, figures 7 and 7*a*.)

TYPE LOCALITY.—Massachusetts; types in collection of American Entomological Society.

This species is recognizable at a glance by the extremely elongated malar space. Its range covers the coast district of southern New England and the North Atlantic states. Mr. Cresson also records it from Dallas county, Texas, where Mr. J. Boll collected three specimens representing both sexes, but I have seen no specimens from without the first mentioned district. My material is all from New Hampshire, Connecticut, New York, New Jersey and Pennsylvania. It is a vernal species, flying from April 10 to May 16, apparently being most abundant during the first two weeks in May. It visits the flowers of *Ribes oxyacanthoides, R. rubrum, Leucothoe racemosa,* and *Chamaedaphne calyculata,* in wet woods and swampy lands.

SPECIMENS EXAMINED—Connecticut: New Haven, 2; New Hampshire: Durham, 1; New Jersey: Clementon, 38; New Brunswick, 1; New York: Bayville, Long Island, 1; Sea Cliff, Long Island, 1; Pennsylvania: Germantown, 4.

Colletes distinctus Cresson.

1868. *Colletes distincta* Cresson, *Proceedings of the Boston Society of Natural History,* xii, p. 167, ♂ (December, 1868); original description.

1879. *Colletes nitidus* Smith, *New Species of Hymenoptera in the British Museum,* pp. 1–2, ♀ ♂ (August, 1879); original description.

1895. *Colletes distincta* Robertson, *Transactions of the American Entomological Society,* xii, p. 115, ♀ (May, 1895); description of ♀; recorded from Florida.

1896. *Colletes distinctus* Dalla Torre, *Catalogus Hymenopterorum,* x, p. 40 (1896).

1904. *Colletes nitida* Cockerell, *Entomological News,* xv, no. 8, p. 276, ♀ (October, 1904); notes on the type in British Museum.

1905. *Colletes distinctus* Cockerell, *Psyche,* xii, p. 87, ♂ (October, 1905); in table of species.

♀. Length 11 mm. Clypeus shining, convex, coarsely irregularly striate-punctate, not at all sulcate. Supraclypeal area closely, coarsely punctured. Face with small, close punctures and short, erect, pale pubescence. Vertex shining, finely double punctured, its hairs pale, very sparingly mixed with black. Cheeks shiny, finely and closely punctured, clothed with short grayish white pubescence. Malar space about one-half as long as wide. Antennae black with the flagellum brownish beneath, joint 3=4 and longer than 2, the proportion being 3:4:4, the flagellar joints as long as broad. Prothoracic spine not developed. Mesothorax shiny, anteriorly with coarse, very close punctures to about the middle, where they become scattered, closest laterally, forming a very large, polished, medially quite impunctate disk. Scutellum anteriorly polished and sparsely punctured, posterior half with coarse and rather close punctures. Postscutellum opaque, roughened. Superior face of metathorax very well defined, dividing into very large, squarish, shining pits. Enclosure funnel-shaped, polished, the bowl concave and perfectly smooth, surrounding areas shining, minutely reticulate. Mesopleura shining, the punctures very large and shallow so that the dividing lines appear as irregularly anastomosing ridges. Thoracic dorsum with short, thin, erect, dull gray pubescence, well mixed with black on the disk and still more abundantly so on the scutellum, the pubescence of the postscutellum and sides of metathorax longer, denser and whitish, that on pleura and under surface short and whitish. Tegulae shining blackish. Wings slightly clouded, nervures and stigma ferruginous. Legs black,

with their pubescence all whitish except the reddish inner tarsal tufts, the basal joint of hind tarsi three and one-third times as long as wide, middle joints about one-half as wide as long. Anterior coxae not distinctly spined. Tibial spurs long and yellowish, not pectinate. Claws rufous with a large submedian tooth. Abdomen neatly conical, very polished, two basal segments smooth and practically impunctate, following segments less polished and finely, indistinctly punctured. Apical margins of segments not depressed, 1 with a narrow fascia reduced to a mere line medially and paralleled by a very thin fascia on base of 2, apical margins of 2-5 with broad fasciae, all pure white, continued as strong apical fringes ventrally. Disks of segments 4-6 with scattered black bristles.

♂. Length 10 mm. Differs from the ♀ as follows: Pubescence denser and more tinged with yellowish, the clypeus covered by long, pale yellowish hair, the thoracic dorsum pale yellowish gray mixed with a few black hairs on scutellum; malar space three-fifths as long as broad; antennal joint 3 distinctly shorter than 4 and twice as long as 2, 2+3=4, the proportion being 2:4:6; flagellar joints one and two-fifths as long as broad; mesothorax more finely and sparsely punctured, these not crowded, even anteriorly, scutellum with very large, coarse punctures; bowl of metathorax with a few short lateral ridges; basal joint of hind tarsi five times as long as wide, middle joints one-half as wide as long; apical tarsal joint rufescent; abdominal segments 1-5 with narrow, white, apical fasciae, segment 1 more distinctly punctured and with long pale ochraceous hair on the disk.

Genitalia.—Stipes notched, its apical joint slender and sparsely haired; sagittal rods basally much dilated, becoming abruptly very slender medially and converging distally, the wings hood-shaped; volsella large, about one-half the length of sagitta; seventh ventral plate elongated latero-apically, the outer prolongations recurved, the inner ones overlapping, the whole of the apical lobes finely haired, thinnest medially. (Plate 2, figures 8 and 8*a*.)

TYPE LOCALITY.—Georgia; type in collection of American Entomological Society.

This handsome species was described by Mr. Cresson from a single male specimen collected by Mr. James Ridings in Georgia. Mr. Charles Robertson recognized the species from Florida specimens, and described the female in 1895. The above description is drawn from a pair very kindly sent by Mr. Robertson, taken at Inverness, Florida, March 19, 1891, by himself. I have also a single female collected in Orange county, Florida, by Mr. F. Rauterberg. There is nothing in Smith's description of *C. nitidus* to indicate specific distinctness from the present species, and I

think the two are identical. The types of *nitidus* came from St. John's Bluff, east Florida.

SPECIMENS EXAMINED—Florida: Inverness, 2; Orange county, 1.

Colletes productus Robertson.

1891. *Colletes productus* Robertson, *Transactions of the American Entomological Society,* xviii, pp. 62–63, ♂ (April, 1891); original description.

1904. *Colletes productus* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 278, ♂ (September, 1904); in table of Illinois species.

♀. Length 9 mm. Clypeus convex, shining, with coarse, well-separated punctures, closer and shallow in a broad median sulcus. Supraclypeal area closely punctured, shiny. Face finely and closely punctured, the foveae very prominent, impunctate. Sides of vertex shining, subimpunctate but for a very few, scattered, small, round punctures. Cheeks shiny, finely and indistinctly punctured. Pubescence of face, vertex, occiput, and cheeks very thin, short, and pale grayish white. Malar space one-half as long as wide. Antennae short, black with the flagellum brown beneath, joint 3 longer than 4 or 5, the proportion being 4:3:3, the median flagellar joints three-fourths as long as wide. Prothoracic spine very short and blunt. Mesothorax shining, sparsely and very finely punctured, these distant even on anterior margin, a large impunctate disk. Scutellum shining, anteriorly scarcely punctured, posteriorly with coarse, separated punctures. Postscutellum dull, coarsely roughened. Superior face of metathorax very well defined and divided into rather regular squarish pits. Enclosure polished, funnel-shaped, the bowl very convex with a median carina and several lateral ridges, the neck concave, very broad, smooth. Surrounding areas shining, sparsely and weakly pitted. Mesopleura with coarse, round, well-separated punctures. Pubescence of thoracic dorsum dull brownish gray, scarcely mixed with black on the disk, but with a few black and numerous dark brown hairs among the pale ones on scutellum, the metathorax, pleura, and under parts with thin grayish white hair. Tegulae black. Wings clear, nervures and stigma pale brown. Legs clothed with pale pubescence, on tarsi within tinged with golden, the basal joint of hind tarsi three times as long as wide, median joints twice as long as wide. Anterior coxae unarmed. Claws rufous, deeply medially toothed. Tibial spurs dark brown, the hind ones on hind tibiae not pectinate. Abdomen stout, suboval, first segment shiny, very sparsely and feebly punctured, second segment much more closely but rather indistinctly punctured, following segments indistinctly punctured. Apical margins of segments 1-3 depressed, 1 on sides only, and with thin lateral fasciae, 2 and 3 with entire white fasciae, 4 and 5 not fasciate. Basal segment with thin, short,

lateral tufts of whitish hair, the disks of the segments with a very minute and thin pale pile, apex with a few black hairs.

♂. Length 8 mm. Differs from the ♀ as follows: Clypeus dull and honeycombed with punctures except at the shining, impunctate apex, covered with pale, grayish white hair, the face above with long, thin, white hair; thoracic dorsum with erect, very thin, whitish hair, nowhere mixed with black or brown; sides of vertex quite impunctate; antennae long, flagellum brownish below and distinctly punctured, joint 3 shorter than 4, taken with 2 about = to 4 or 5, the proportion being 2:3:5:5, median joints one and one-half times as long as broad; basal joint of hind tarsi nearly four times as long as broad, median joints three-fifths as broad as long; malar space two-thirds as long as broad; claws equally cleft at apex; apical margins of segments 1-5 depressed and with thin, narrow, loose, white fasciae.

Genitalia.—Stipes notched, its apex small, blunt and sparsely fringed, the basal and middle sections very stout; sagittal rods basally dilated, medially internally toothed, apically slender, the tips of the wings divergent; volsella small; seventh ventral plate fan-shaped, the external costa recurved downwards, internal costae with long hair, the lobes with short dense bristles except basally. (Plate 2, figures 9 and 9*a*.)

TYPE LOCALITY.—Carlinville, Illinois; type in collection of Mr. Charles Robertson.

A unique male taken at Carlinville on flowers of *Apocynum cannabinum*, June 21, by Mr. Robertson has until now formed the basis for this species. A male taken at Hyannia Point, Massachusetts, July 4, 1904, by Mr. C. W. Johnson has been compared with the type by Mr. Robertson and found to be the same. The female here described was collected at Webster, New Hampshire, August 1, 1898, on *Rhus* by Mr. W. F. Fiske. The two last-mentioned specimens are in the author's collection. In all probability the species is a wide ranging, though uncommon one.

SPECIMENS EXAMINED—Massachusetts: Hyannis Point, 1; New Hampshire: Webster, 1.

Colletes lacustris Swenk.

1906. *Colletes lacustris* Swenk, *Entomological News*, xvii, p. 257, ♀ ♂ (September, 1906); original description.

♀. Length 9 mm. Clypeus shining, long, and prominent, flattened but not sulcate, its punctures coarse but widely separated and not at all striate, the subapical transverse depression very deep. Supraclypeal area shining, coarsely punctured. Face roughened by excessively small cancellate punc-

tures, dull, its pubescence short, sparse, and pale. Sides of vertex densely, finely, indistinctly punctured, the interocellular tuft and occipital fringe sparse, black with some pale hairs intermixed. Cheeks with sparse, shallow punctures and short, thin, white hair. Antennae short, black, joint 3=4 or 5, flagellar joints three-fourths as long as wide. Malar space about one-half as long as wide. Prothoracic spine very short, blunt. Punctures of mesothorax fairly large, rounded and distinct, very close along anterior margin, medially and posteriorly widely separated and less distinct on a shining surface, this shading further into a large, polished, impunctate spot on the disk. Mesopleura with distinct, well-separated punctures. Scutellum with a wide basal, polished, impunctate space followed by a densely, striately punctured surface. Postscutellum minutely roughened, opaque. Superior face of metathorax poorly defined, its pits rather irregular, longer than broad. Enclosure funnel-shaped, the bowl coarsely irregularly rugose, the neck concave, smooth, and somewhat shining. Sides of posterior face subopaque, densely shallowly rugose, tuberculate. Tegulae large, shining, black. Wings clouded by a moderate infuscation, nervures and stigma black. Thoracic dorsum with sparse, erect, black pubescence mixed with pale hairs, densest on scutellum and thinnest on disk. Postscutellum, metathorax, pleura, and below with thin grayish white pubescence. Legs moderately stout, their pubescence thin and whitish, the basal joint of the hind tarsi two and one-half times as long as broad, middle joints one and one-half times as long as broad. Anterior coxae with very short, inconspicuous, blunt spines. Tibial spurs dark testaceous, not pectinate. Claws rufous, deeply medially toothed. Abdomen stout, suboval, almost bare, very polished, two basal segments practically impunctate, following segments very minutely and indistinctly punctured. Apical margins of segments not at all depressed, the fasciae on 2-5 reduced to mere fringes, easily worn off. The extreme lateral base of segment 1 has some sparse white hair, and the disks of segments 3-6 have scattered, short, fuscous hairs.

♂. Length 8 mm. Differs from the ♀ as follows: Pubescence of vertex and thoracic dorsum largely pale, well mixed with black on scutellum; clypeus basally finely, closely punctured, apically polished and impunctate; antennae with flagellum brownish beneath, joint 3 shorter than 4 or 5, the proportion being 4:5:5; the median flagellar joints one and one-fifth times as long as broad; malar space five-sixths as long as broad; punctures of mesopleura sparse, shallow, and indistinct; basal joint of hind tarsi four times as long as broad, median joints one and two-thirds times as long as broad; basal two abdominal segments scatteringly, feebly punctured, 2-5 with more decided apical fringes, the segments abundantly provided with long, erect, pale hairs.

Genitalia.—Stipes notched, its apex stout, rather large, ovoid, and bearing long, dense hairs; sagittal rods with their basal dilations elongate acuminate and converging apically, the distal wings divergent and medially

ribbed, the tips of the sagittae exceeding the stipites; volsella rather small, less than one-half as long as sagitta; seventh ventral plate produced apically into two long tails, the apices of which are setigerous medially, with outwardly directed short bristles, denser internally, the basal and internal margin glabrous. (Plate 2, figures 10 and 10*a*.)

TYPE LOCALITY.—Baraga county, Michigan; cotypes in collection of Philadelphia Academy of Natural Sciences and of the author.

This species is known only from the type series, collected by Mr. Morgan Hebard in northern Michigan (Baraga county) along the shores of Lake Superior, July 2 to 24, 1903. The specimens were collected in huckleberry barrens and in meadows and marshy tracts. Quite probably it visits the huckleberry blossoms.

SPECIMENS EXAMINED—Michigan: Baraga county, 4; Pequaming, 3; Point Abbaye, 2.

Colletes fraserae n. sp.

♂. Length 7 mm. Clypeus coarsely and striately punctured, largely concealed by the long, erect, grayish white hair of the face. Sides of vertex and cheeks closely, weakly punctured. Malar space three-fifths as long as broad. Antennae long, joint 3 shorter than 4 or 5, the proportion being 3:5:5, the median flagellar joints one and three-tenths as long as wide. Prothoracic spine short and distinct. Mesothorax distinctly, closely punctured, but these not crowded and on a large, shining disk quite sparse. Scutellum coarsely punctured, postscutellum dull and finely roughened. Superior face of metathorax broad and crossed by about eight ridges, forming subquadrate pits much longer than broad. Enclosure small, the bowl very short and wide, entirely longitudinally ridged, the neck short and narrow, smooth, surrounding areas opaque. Pubescence of thorax gray, slightly mixed with black on scutellum. Tegulae dark. Wings slightly darkened, nervures and stigma black. Legs slender, black, the basal joint of hind tarsi four times as long as broad. Abdomen slender, shining, segment 1 subimpunctate, 2 sparsely weakly punctured, 3 and following sparsely, indistinctly punctured, apical margins of 1-5 distinctly depressed and bearing very thin, loose, white fasciae.

Genitalia.—Stipes notched, its apex slender, straight, pubescent; sagittal rods abruptly constricted medially, their apices divergent, bases greatly dilated; volsella small; seventh ventral plate fan-shaped, the lobes heavily chitinized and densely pilose along the costae, moderately hairy on the disks. (Plate 2, figures 11 and 11*a*.)

TYPE LOCALITY.—Beulah, New Mexico; type in collection of the author.

The type was collected July 7, 1902, at flowers of *Frasera* by Mrs. Wilmatte P. Cockerell. Externally it resembles *C. lacustris* very strongly but the genitalia are very different from those of that species.

SPECIMENS EXAMINED—New Mexico: Beulah, 1.

Colletes intermixtus Swenk.

1905. *Colletes intermixtus* Swenk, *Canadian Entomologist,* xxxvii, no. 8, pp. 302–04, ♀ (August, 1905); original description.

♀. Length 9.5 mm. Clypeus flat, shiny, medially slightly but broadly sulcate, its punctures coarse but widely separated and not forming distinct striae. Supraclypeal area shining and impunctate medially. Face closely punctured, clothed with short gray pubescence. Sides of vertex shining, subimpunctate. Antennae very short, black with the flagellum brownish fuscous beneath, joint 3=4 or 5, all the median joints but three-fourths as long as wide. Malar space very short, linear, about one-seventh as long as broad, finely striate. Cheeks shiny, finely, sparsely punctured, clothed with long, sparse, white pubescence. Vertex with long hairs, pale and black intermixed, occiput with a short and dense pale fringe. Prothoracic spine present, short and sharp. Mesothorax with small, round, deep punctures, crowded but distinct anteriorly, along sides and posteriorly well separated, a very few on a good-sized shining disk. Mesopleura similarly but striately punctured. Scutellum with anterior one-third shining and impunctate, the remaining portion coarsely and sparsely punctured, and with a median depressed line. Postscutellum densely punctured. Superior face of metathorax fairly well defined, its pits shining, somewhat irregular, longer than broad. Enclosure perfectly funnel-shaped, shining, the bowl convex with a median and several lateral ridges, the neck concave and perfectly smooth. Surrounding area shiny, with sparse but very distinct punctures. Pubescence of thorax above grayish white sparingly mixed with black on scutellar fringe and mesothorax, below pure white. Tegulae blackish. Wings subhyaline, nervures dark brown, the stigma paler. Legs stout, black, clothed with short, dense, white pubescence, some black bristles along anterior border of intermediate and posterior tarsi. Basal joint of hind tarsi three times as long as broad. Tibial spurs slender, dark, not pectinate. Claws ferruginous, medially toothed. Anterior coxae not spinate. Abdomen stout, distinctly subconical, shining, segment 1 impunctate or at most indistinctly and scatteringly punctured, 2 and following segments indistinctly but rather closely punctured, the apical margins perfectly smooth and impunctate under the broad, pure white fasciae on segments 1-5. Basal truncation with long, erect, white hairs, becoming shorter and sparser on the disk of segment 1 and forming a dense fringe down the sides, following segments with short, scattered pale pile, 4-6

with black bristles on the disk. Apical margin of 1 and 2 and basal margin of 2 depressed and contricted. Ventral segment 5 emarginate on apical margin.

♂. Length 9 mm. Differs from the ♀ as follows: More slender; sides of vertex impunctate; antennae long, the flagellum paler beneath, joint 3 shorter than 4 or 5, 2+3 longer than 4 or 5, the proportion being 3:3.5:5:5; median flagellar joints one and one-fourth times as long as broad; malar space one-half as long as broad; tibial spurs long, apically deflexed, giving a remarkable crooked appearance; posterior tibiae swollen medially; claws subapically cleft; abdomen longer, more distinctly punctured; hind metatarsi about three times as long as broad.

Genitalia.—Stipes notched, its apex long, slender, submembranous, middle joint with long plumose hairs; sagittal rods slender, subparallel or slightly converging, abruptly expanded basally, apically with small quadrate wings; volsella rather large; seventh ventral plate fan-shaped, the externo-apical corners prolonged and recurved, and bearing an isolated patch of dense bristles, internal costae densely haired, the apical margin with a few sparse hairs. (Plate 2, figures 12 and 12*a*.)

TYPE LOCALITY.—Fedor, Lee county, Texas; types in collection of the author.

Originally this species was described from a unique female taken at Fedor, Lee county, Texas, April 22, 1904, by Rev. G. Birkmann. I have since examined two pairs collected on the chapparel at Cotulla, Texas, May 12, 1906, by J. C. Crawford and a female taken on *Vachellia farnesiana* May 9, 1906, by F. C. Pratt at the same locality. A single male from Oak Creek canyon, Arizona, 6,000 feet, captured in July by Professor F. H. Snow is also referable to this species, which is apparently a Lower Sonoran form.

SPECIMENS EXAMINED—Arizona: Oak Creek canyon, 1; Texas: Cotulla, 5; Fedor, 1.

Colletes texanus Cresson.

1872. *Colletes texana* Cresson, *Transactions of the American Entomological Society,* iv, p. 249, ♀ (November, 1872); original description.

1896. *Colletes texanus* Dalla Torre, *Catalogus Hymenopterorum,* x, p. 46 (1896).

1897. *Colletes texana* Cockerell, *Annals and Magazine of Natural History,* series 6, xix, p. 45 ♀ (January, 1897); recorded from Las Cruces, New Mexico.

1897. *Colletes texana* Cockerell, *Bulletin of the New Mexico Agricultural Experiment Station,* no. 24, p. 24 (August, 1897); recorded from Mesilla Valley, New Mexico, on basis of above record.

1898. *Colletes texana* Cockerell, *Bulletin of the Scientific Laboratories of Denison University,* xi, no. 3, p. 42, ♀ (November, 1898); in table of New Mexico species.

1906. *Colletes texana* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 292 (October, 1906); in list of New Mexico species.

♀. Length 8 mm. Shining black, stoutish. Clypeus shiny, convex, not sulcate, its punctures large and fairly close but not striate, sparsely clothed with erect, pale hairs. Supraclypeal area well punctured. Face closely and rather finely punctured, clothed with short, dense, erect, grayish white pubescence. Antennae short, black with the flagellum brownish beneath beyond second joint, joint 3=5 but decidedly longer than 4, the proportion being 3:2:3, the median joints shorter than wide. Vertex with sides very shiny, finely double punctured, clothed medially with sparse, long hairs, pale with a few blackish ones intermixed. Cheeks shiny, finely sparsely punctured, sparsely white hairy. Malar space very short, one-ninth as long as broad. Prothoracic spine reduced to a mere pointed angulation. Mesothorax with the anterior half, a broad line down each side and a narrow line along posterior margin with coarse and deep, close but separate punctures, the space enclosed by these areas forming an unusually large, polished, perfectly impunctate disk. Entire scutellum rather coarsely and fairly closely punctured on a shiny surface, postscutellum with small, close punctures, opaque. Metathorax with a well-defined superior face which has the usual shining pits, squarish medially, laterally poorly defined and narrow. Enclosure funnel-shaped, basally with a narrow transverse depression, elsewhere concave, narrow, smooth, and highly polished, nowhere dull. Lateral faces of posterior plate shiny, coarsely but shallowly punctured. Sides of metathorax dullish or slightly shiny, minutely punctured and ridged, and with scattered, larger punctures. Mesopleura with coarse, close, striate punctures. Pubescence of thorax grayish white, thinner and paler below, above conspicuously mixed with black and dark brown hairs, these densest on a scutellar fringe, the disk practically devoid of pubescence. Tegulae shining blackish. Wings hyaline, stigma dark brown, nervures brownish fuscous to black. Legs moderately stout, black, their pubescence densest on the posterior femora and tibiae, all silvery white except that on inner side of tarsi, which is golden brown, the basal joint of hind tarsi three times as long as broad. Claws medially toothed, ferruginous, the tibial spurs large and blackish, the outer posterior ones with about a dozen long, coarse teeth, the inner one finely pectinate, the anterior coxae not spined. Abdomen suboval, shining, the first segment polished and subimpunctate, the second segment indistinctly punctured, the punctures becoming fairly dense on the margins, the third and following

segments punctured like the margins of the second. The first segment is covered discally with scattered, long, pale hairs, densest on the basal truncation except down the sides, where they are short and dense, forming a fringe; the next two segments have short and inconspicuous, scattered, pale hairs; the rest of the segments have longer, more bristle-like hairs, all pale. The fasciae are on apical margins of segments 1-5 and are even and snow-white, contrasting conspicuously with the polished abdomen, the first one being reinforced by another one on base of segment 2, but these two together are much narrower than the others, and especially medially. They are continued on the venter as conspicuous, long, dense, bristle-like, white scopal fringes. Apex inclining to ferruginous.

♂. Unknown.

TYPE LOCALITY.—Comal county, Texas; type in collection of the American Entomological Society.

This species was originally described by Mr. Cresson from a unique female collected in Comal county, Texas. Mr. Cockerell records another specimen, a female taken at Las Cruces, New Mexico, on *Salix*, May 2. I have two specimens taken at Fedor, Texas, March 21, 1899, and April 4, 1902, respectively, both females.

SPECIMENS EXAMINED—Texas: Fedor, 2.

Colletes algarobiae Cockerell.

1900. *Colletes algarobiae* Cockerell, *The Entomologist*, xxxiii, pp. 244-45, ♀ ♂ (September, 1900); original description.

1906. *Colletes algarobiae* Cockerell, *Transactions of the American Entomological Society*, xxxii, p. 292 (October, 1906); recorded from Mesilla Valley on basis of types.

"♀. Length 8½ mm., similar to *C. prosopidis*, but larger; flagellum wholly dark; the white pubescence of vertex, mesothorax, and scutellum (particularly the last) with blackish hairs intermixed; hind margins of ventral abdominal segments whitish hyaline. Wings hyaline, nervures and stigma black; abdomen with distinct and broad white hair bands; tegulae shining dark brown; mesothorax rather sparsely punctured; malar space much broader than long. Differs from the ♀ of *texana* by the less conspicuous black hair of thorax, differently sculptured metathoracic enclosure (that of *texana* being divided by the ridges into square portions) and especially by the much smaller and less crowded punctures of the mesothorax.

♂. Resembles *C. prosopidis*, but is larger, with the very long flagellum only dull brownish beneath, and conspicuously, though finely, pubescent; second submarginal cell much broader, less narrowed above; enclosure of

metathorax with about 8 distinct longitudinal ridges, and bounded by a strong single ridge (in *prosopidis* the bounding ridge is generally double). The tarsi are clear bright ferruginous; nervures and stigma very dark brown; malar space but little broader than long.

The specific name is derived from that of the subgenus to which the mesquite belongs. From *C. daleae* the ♂ differs by the broader and shorter abdomen, dark stigma and tegulae, and the malar space is much shorter than in *daleae*." (Original description.)

TYPE LOCALITY.—Mesilla Park, New Mexico; types in collection of Professor T. D. A. Cockerell.

This species I have not examined, but it seems to be distinct. Professor Cockerell took the types on May 20 at the flowers of *Prosopis glandulosa.*

Colletes scopiventer n. sp.

♀. Length 9.5 mm. Very similar to *C. texanus* ♀, but larger, the outer spur of hind tibiae microscopically ciliate instead of coarsely pectinate, the mesothorax similarly but more finely punctured and with sparse punctures on the disk.

♂. Length 9.5 mm. Like the ♀ except as follows: Face with long, dense, gray hair, covering clypeus; malar space one-third as long as wide; joint 3 one-half as long as 4 or 5, the proportion being 3:6:6; flagellar joints one and one-half times as long as wide; basal joint of hind tarsi three and one-half times as long as broad; apical margins of abdominal segments 1-5 depressed, of 1 distinctly constricted; abdominal segment 1 polished, finely, scatteringly punctured, and with long white hair, 2 coarsely, closely punctured, dull, disks of 3-5 with long, white bristles.

Genitalia.—Stipes notched, its apex long, slender, claw-like; sagittal rods subparallel, gradually tapering toward apex, expanded into large oval wings; volsella large; seventh ventral plate with the lobes suboval, their disks subuniformly pilose, heavily chitinized basally. (Plate 3, figures 13 and 13*a*.)

TYPE LOCALITY.—Fedor, Lee county, Texas; types in collection of the author.

The type female and male were taken on April 1, 1902, and March 21, 1899, respectively, by Rev. G. Birkmann. I have no further information regarding this species, which is a close ally of *texanus.*

SPECIMENS EXAMINED—Texas: Fedor, 2.

Colletes hydrophilus Cockerell.

1906. *Colletes hydrophilus* Cockerell, *Annals and Magazine of Natural History,* series 7, xvii, pp. 313–14, ♂ (March, 1906); original description.;

1907. *Colletes hydrophilus* Cockerell, *University of Colorado Studies,* iv, p. 240, ♂ (June, 1907); in table of Boulder county, Colorado, species.

"♂. Length about 10½ mm. Black, with white pubescence, blackish on scutellum and posterior disk of mesothorax; apical half of mandibles dark reddish; labrum with a row of pits; malar spaces very short, more than twice as broad as long; eyes strongly converging below; face densely covered with white hair; antennae dark, long, the flagellum stout, crenulate, its joints much longer than wide; third antennal joint dull velvety black, contrasting with the pruinose appearance of the rest of the flagellum; joint 4 about or nearly as long as 2+3, 5 much longer than 4 (in *C. gilensis* it is only a little longer than 4); mesothorax shining, with uniformly-placed, well-separated, large and strong punctures; scutellum with close very large punctures; postscutellum with exceedingly dense, smaller punctures and a row of roundish pits along its anterior margin; area of metathorax with a very strong transverse ridge bounding the basal area, which is divided into very large quadrate spaces by about six carinae; lateral posterior faces shining, not much roughened, and not at all reticulate; prothoracic spines evident; tegulae shining black. Wings hyaline, clearer (and greyish, not at all reddish) than in *C. gilensis;* stigma ferruginous, nervures rather light fuscous; b. n. nearly reaching t. m.; second s. m. broader than high, receiving the first r. n. at or a little beyond the middle. Legs black, with white hair, spurs, and claws ferruginous; abdomen shining, with very strong well-separated punctures, and narrow white hair-bands on the apices of the segments; last ventral segment with the longitudinal carina barely indicated.

"In my table in 'Psyche,' 1905, this runs straight to *C. gilensis* Ckll., but that is a considerably larger insect, and the sculpture of the metathorax is quite different. In Robertson's table it appears to run closest to *C. nudus* Rob., but it is easily known from that by the very strong punctures of the abdomen. It has a very strong resemblance to *C. opuntiae brevicornis* . . . but differs entirely in the antennae, and otherwise in various small details." (Original description.)

TYPE LOCALITY.—Boulder canyon near Boulder, Colorado; type in collection of Professor T. D. A. Cockerell.

The unique type was collected on June 26 while flying over damp sand. I have sent a metatype of *C. nudus* to Professor Cockerell for comparison with *hydrophilus,* and he finds that the

latter has a broader and more closely punctured abdomen, differently sculptured metathorax (pits broader and better formed), unclouded wings, and more densely punctured scutellum, but he considers the two as allied. I regret that I am unable to figure the genitalia of this interesting species.

Colletes nudus Robertson.

1898. *Colletes nudus* Robertson, *Transactions of the Academy of Science of St. Louis,* viii, pp. 43–44, ♀ ♂ (March, 1898); original description.

1904. *Colletes nudus* Robertson, *Canadian Entomologist,* xxxvi, no. 9, p. 275, ♀, p. 277, ♂ (September, 1904); in table of Illinois species.

1905. *Colletes Vierecki* Swenk, *Ibid.,* xxxvii, no. 8, pp. 301–02, ♀ (August, 1905); original description.

♀. Length 10-12 mm. Shining black, body almost bare. Eyes moderately converging below. Clypeus slightly convex, not sulcate, closely striate-punctate. Supraclypeal area convex, shining, marginally with crowded punctures. Face crowded with good-sized punctures and with very short, erect, pale pubescence. Antennae black, the flagellum dull brownish dusky beneath, the scape deeply punctured, joint 3 a shade shorter than 4, decidedly shorter than 5, the proportion being 3.5:4:5. Median flagellar joints as wide as long. Malar space linear, about one-ninth as long as wide. Cheeks rather coarsely and closely punctured except around the orbits, their pubescence very sparse and whitish. Vertex shining and polished, finely and sparsely double punctured, its pubescence fairly long, pale and black intermixed, the former predominating posteriorly, the latter between ocelli. Facial foveae large, distinct, encroaching on vertex. Prothoracic spine distinct, sharp, broadly subtriangular. Pubescence of a broad anterior thoracic border mostly grayish white and very short and thin, dense on a grayish mat on tubercles, that on entire disk mostly black, of very scattered, short, bristle-like hairs not nearly concealing the surface. A black scutellar fringe is followed by a pale one, and longer pale grayish hairs are on the postscutellum and down the sides of metathorax. Mesothorax anteriorly with a median impressed line and coarse, very close punctures becoming more separated posteriorly, decidedly more so on a very small disk. Scutellum shining, very coarsely and quite closely studded with round punctures, postscutellum with fine cancellate punctures and anteriorly a more or less evident row of irregular pits. Mesopleura with very large, coarse, striate punctures. Superior face of metathorax well defined by a rimmed angulation and with the usual shining pits, square medially. Enclosure polished, approaching a T-shape because of the very wide bowl and narrow neck, the former of these convex with lateral ridges and the latter with indistinct transverse rugae, the surrounding areas

shiny, sparsely punctured, and irregularly feebly reticulated. Tegulae shining black. Wings slightly infuscated on apical half, basally subhyaline, nervures black, stigma dark brown. Legs black, their pubescence longest on posterior femora and tibiae, wholly grayish white except for the reddish tarsal tufts on inner apices. Anterior coxae with very small, short spines. Tibial spurs dusky testaceous, very finely and feebly pectinate. Claws ferruginous, medially toothed. Basal joint of hind tarsi slender, over three times as long as wide, middle joints two and one-half times as long as wide. Abdomen stout, subconical, the first segment polished, its basal truncation impunctate, elsewhere with distinct, rather coarse, very well-separated punctures, becoming very fine and close on apical margins, following segments less polished but still shiny, more finely and closely punctured, apex finely rugose. Apical margins of segments 1 and 2 constricted and depressed, of 3 and 4 merely depressed. Segments 1-5 have narrow white fasciae continued on the ventral fringes, but otherwise the abdomen is almost bare, having but short, scattered hairs at base and down sides of 1, the other segments with minute, scattered, pale hairs and some longer dark ones on last three segments.

♂. Length 9 mm. Differs from the ♀ as follows: Pubescence somewhat longer and rather denser, that on cheeks white, that on clypeus short but appressed and dense, concealing the surface; antennal joint 3 a little over one-third as long as 4, 2+3 distinctly shorter than 4, the proportion being 2.5:2.5:7; median antennal joints one and three-fourths times as long as wide; malar space one-fourth as long as wide; metathorax with posterior face scarcely punctured but very distinctly reticulated; punctures of mesopleura well separated; posterior tarsi more slender, the basal joint five times as long as wide, the middle joints one and one-half times as long as wide, the apical tarsal joints brownish.

Genitalia.—Stipes notched, its apex long, curved, acuminate, heavily haired; sagittal rods sinuous, gradually tapering, their tips divergent; volsella moderate, seventh ventral plate somewhat T-shaped, owing to the lateral prolongation of the lobes which have the tips recurved; internal costa densely haired, remainder of apical half of lobes with longer and sparser hair, basal half of lobes glabrous and heavily chitinized on basal margin, the chitinized area forming two prominent ovals connected internally by upward prolongations. (Plate 3, figures 14 and 14*a*.)

TYPE LOCALITY.—Carlinville, Illinois; types in collection of Mr. Charles Robertson.

Colletes nudus is a Lower Austral species, ranging from New Jersey, Maryland, and Virginia west to southern Illinois (Carlinville), northern Arkansas (Marion county), and east central Texas (Lee county). It is an aestival species, beginning to fly in Texas late in May, and in the Atlantic Coast states from mid-

dle June to latter August (June 14-August 23). Mr. Robertson originally described the species from three female and two male specimens captured by him at Carlinville, Illinois, and has kindly sent me metatypes of both sexes for study. In 1905 I described *C. vierecki* from four female cotypes collected at Anglesea, New Jersey, August 8, 1901, on "white umbellifer" by Mr. H. L. Viereck, supposing it to differ sufficiently in the lack of distinct postscutellar pits and average larger size to warrant specific separation from *nudus,* but additional material has shown these characters to be variable, so that I am now unable to separate *vierecki* satisfactorily and have placed it in the synonymy of *nudus.* My records go to show that this species is a common visitor on *Ceanothus americanus* in June and July.

SPECIMENS EXAMINED—Arkansas: Marion county, 1; Illinois: Carlinville, 2; Maryland: Indian Head, 2; New Jersey: Anglesea, 6; Texas: Fedor, 3; Virginia: Falls Church, 4; Glencarlyn, 1.

Colletes fulgidus Swenk.

1904. *Colletes fulgidus* Swenk, *Canadian Entomologist,* xxxvi, pp. 95–97, ♀ ♂ (April, 1904); original description.

♀. Length 10 mm. Clypeus shining, flattened, usually slightly medially sulcate, coarsely punctured on a striate surface, the punctures well separated. Supraclypeal area laterally punctured. Front dull, with small, crowded punctures, the foveae impunctate, suboval, about twice as long as wide. Face covered with erect, short, gray pubescence, longer and tinged with ochreous on vertex, short and pure white on cheeks. Sides of vertex very finely and sparsely punctured, shining. Cheeks dull, with fine, shallow, close punctures. Malar space one-sixth as long as broad. Antennae black or with the flagellum obscurely brownish beneath, joint 3 longer than 4 or following joints, the proportion being 4:3:3. Prothoracic spine short, stout, and sharp. Mesothorax very coarsely and deeply punctured, the punctures very close and sometimes cancellate, on the large polished disk few or none, a broad subimpunctate line bounding each parapsidal groove. Scutellum hardly punctured except along posterior margin, postscutellum dull and finely roughened. Anterior margin of thorax with a dense fringe of erect hair, whitish, tinged with ochreous, mixed with a few black hairs, this fringe passing along the sides within the tegulae and covering the postscutellum. The space within this circle of pubescence almost bare, only a few scattered black bristles, becoming denser toward the sides and forming a fringe of black hairs along the

posterior edge of the scutellum. Superior face of metathorax well defined and with its subrectangular pits unusually large and well formed, shining, scarcely wider medially, about twice as long as broad. Posterior face of metathorax shining, the lateral faces with sparse, long, white pubescence and coarsely, irregularly reticulated, forming a rugose surface, the enclosure funnel-shaped, its bowl ridged laterally and with a median longitudinal carina, not so polished as the smooth neck, which is twice as long as wide at base. Mesopleura shining, very coarsely and closely punctured, the tubercles impunctate. Tegulae shining, dark brown to black. Wings hyaline, nervures very dark brown to blackish, stigma dark brown. Legs black, thinly clothed with whitish pubescence, rufous fringes on inner apices of tarsal joints. Claws medially toothed, ferruginous. Hind tibial spurs testaceous, minutely pectinate. Basal joint of hind tarsi three and one-half times as long as wide, median joints twice as long as wide. Anterior coxae with large, long, hairy spines. Abdomen shining, first segment highly polished, basally impunctate but discally with small, well-separated, delicate punctures, becoming finer and dense on apical margin, segment 2 uniformly and more finely punctured, following segments indistinctly punctured. Basal truncation with a ruff of long, pale hair reaching down the sides of segment 1, base of segment 2 depressed and with a white fascia broadly interrupted medially, supplementing lateral fasciae on apical margin of 1, apical margins of 2-5 with complete broad, pure white fasciae, all the fasciae not dense and easily worn off, 3-6 with a few dark discal hairs.

♂. Length 9 mm. Differs from the ♀ as follows: Pubescence much paler and denser, that on clypeus long, dense, and gray, that on thorax long, erect, and covering the whole surface, wholly grayish white without black hairs; malar space one-third as long as broad; antennal joint 3 shorter than 4 or 5, the proportion being 4:5:6; prothoracic spine smaller; basal joint of hind tarsi about four and one-half times as long as wide; scutellum sparsely punctured all over; abdomen not so highly polished and more distinctly punctured, the whole of the first segment with sparse, long, pale pubescence, loose fasciae on apices of segments 1-6, the apical margins depressed.

Genitalia.—Stipes notched, its apex long, acuminate, and with dense apical bristle tufts, the middle joint with several long setae extending inward over the sagittae; sagittal rods parallel except at tips which are abruptly divergent; volsella moderate; seventh ventral plate basally with conspicuous lateral bristle tufts, distad from which the lobes are hairy, densely so on the internal halves, and longitudinally striated. (Plate 3, figures 15 and 15*a*.)

TYPE LOCALITY.—Big Horn mountains, Wyoming; types in collection of the author.

I originally described this species from a typical pair and six paratypes from Wyoming, Colorado, Idaho, and Oregon, and indicated that it was probably a mountain species of extended distribution. The accumulation of additional material shows it to range from the Pacific coast states from Washington (Yakima, Pullman) to central California (Santa Clara county) east to the plains in Nebraska (Gordon) and Texas (Fedor), in both Sonoran and Transition zones. It flies in the Northwest principally in June and July, southwardly from late August to early October (August 29-October 6). Three females collected at Lehi, Utah, September 9, 1905, by Mr. W. A. Hooker were taken on *Chrysothamnus nauseosus,* which is the only flower record I have; the species, however, probably visits several *Compositae* like the closely related *Colletes armatus.*

SPECIMENS EXAMINED—California: Santa Clara county, 2; Colorado: 2; Idaho: Market Lake, 1; St. Anthony, 1; Nebraska: Gordon, 1; Nevada: Reno, 2; Oregon: Carvallis, 2; Texas: Fedor, 1; Utah: Lehi, 3; Washington: Grand Coulee, 2; Pullman, 1; Yakima, 1.

Colletes nevadensis n. sp.

♂. Practically similar externally to males of *C. fulgidus,* but differing in the characters of the seventh ventral plate, which is glabrous on the striated disk from the lateral bristle tufts to two-thirds the length of the lobe; differing widely from that of *armatus* also by the roughly trapezoidal instead of columnar outline. (Plate 3, figures 16 and 16*a*.)

♀. Unknown or indistinguishable from *C. fulgidus* ♀.

TYPE LOCALITY.—Reno, Nevada; type in collection of the author.

The type was collected September 3, 1889, by Mr. F. H. Hillman. No doubt we have here a case parallel to that exhibited between the palaearctic species *balteatus* Nyl. and *cous* Morice, which agree so closely externally that Rev. Morice is unable to separate them except on the characters of the seventh ventral plate. In *nevadensis* the plate is so distinct from that of either *fulgidus* or *armatus* that I am compelled, for the present at least, to consider it a distinct species.

SPECIMENS EXAMINED—Nevada: Reno, 1.

Colletes armatus Patton.

1868. *Colletes inaequalis* Cresson (not of Say), *Proceedings of the Boston Society of Natural History,* xii, p. 166, ♀ (December, 1868); original description.

1872. *Colletes inaequalis* Cresson, *Transactions of the American Entomological Society,* iv, p. 248, ♀ (November, 1872); recorded from Bosque and Dallas counties, Texas.

1879. *Colletes armata* Patton, *Proceedings of the Boston Society of Natural History,* xx, pp. 143–44, ♀ ♂ (April, 1879); new name for Cresson's *inaequalis* and description of supposed male.

1879. *Colletes scitula* Patton, *Ibid.,* p. 144, ♂; original description.

1879. *Colletes armata* Patton, *Bulletin of the United States Geological Survey,* v, p. 365, ♂ (November, 1879); specimen from western Kansas described and compared with Connecticut specimens.

1891. *Colletes spinosa* Robertson, *Transactions of the American Entomological Society,* xviii, p. 60, ♀ ♂ (April, 1891); original description.

1895. *Colletes armata* Robertson, *Ibid.,* xxii, p. 116 (May, 1895); synonymy—*scitula* and *spinosa*=*armata.*

1896. *Colletes armatus* Dalla Torre, *Catalogus Hymenopterorum,* x, p. 37 (1896).

1897. *Colletes bigeloviae* Cockerell, *Annals and Magazine of Natural History,* series 6, xix, p. 40, ♀ (January, 1897); original description.

1897. *Colletes armata* Cockerell, *Ibid.,* p. 41, ♀; recorded from Las Cruces, New Mexico, and compared with *bigeloviae.*

1897. *Colletes bigeloviae* Cockerell, *Bulletin of the New Mexico Experiment Station,* no. 24, p. 21 (August, 1897); recorded from Tularosa creek on basis of preceding record of *bigeloviae.*

1897. *Colletes armata* Cockerell, *Ibid.,* p. 24; recorded from Mesilla valley on basis of preceding record of *armata.*

1898. *Colletes bigeloviae* Cockerell, *Bulletin of the Scientific Laboratories of Denison University,* xi, p. 42, ♀ (November, 1898); in table of New Mexico species.

1898. *Colletes armata* Cockerell, *Ibid.,* p. 42, ♀; in table of New Mexico species.

1899. *Colletes bigeloviae* Cockerell, *The Entomologist,* p. 154, ♀ (July, 1899); recorded from Prude's Summit, White Mountains, New Mexico.

1899. *Colletes armata* Bridwell, *Transactions of the Kansas Academy of Science,* p. 209; recorded on strength of Patton's record from Kansas.

1901. *Colletes bigeloviae* Cockerell, *Annals and Magazine of Natural History,* series 7, vii, p. 125 (January, 1901); recorded from Beulah, New Mexico.

1903. *Colletes bigeloviae* Viereck, *Transactions of the American Entomological Society,* xxix, p. 62 (January, 1903); recorded from Beulah on strength of preceding record.

1903. *Colletes brevispinosus* Viereck, *Ibid.,* pp. 62–63, ♀; original description.

1904. *Colletes armatus* Pierce, *University of Nebraska Studies,* iv, p. 24 (April, 1904); recorded from Lincoln, Nebraska.

1904. *Colletes* sp? Morice, *Transactions of the Entomological Society of London,* 1904, part 1, p. 27, pl. ix, figs. 57 and 58, ♂ (April, 1904); illustration of armature and seventh ventral plate of Massachusetts specimen.

1904. *Colletes armatus* Robertson, *Canadian Entomologist,* xxxvi, p. 275, ♀, p. 277, ♂ (September, 1904); in table of Illinois species.

1906. *Colletes armatus* Robertson, *Science,* xxiii, p. 309 (February, 1906); season, food plants.

1906. *Colletes bigeloviae* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 291 (October, 1906); summary of above records.

1906. *Colletes brevispinosus* Cockerell, *Ibid.,* p. 291; recorded from Beulah on basis of type series.

1906. *Colletes armata* Cockerell, *Ibid.,* p. 292; recorded from Beulah, Sapello canyon and San Ignacio, New Mexico.

1907. *Colletes armatus* Lovell, *Canadian Entomologist,* xxix, no. 11, p. 364 (November, 1907); recorded from Waldoboro, Maine.

♀. Length 10-11 mm. Head short and broad, orbits moderately converging. Clypeus moderately convex, uniformly coarsely striate-punctate and with a very few, scattered pale hairs marginally. Supraclypeal area dullish and with a few deep, round punctures. Face dull, crowded with shallow punctures, the foveae short and impunctate, its pubescence short, dense, grayish white. Vertex with irregularly scattered, large punctures and smaller ones between, on a dullish surface, fringed with long, stiff, black hairs and a few similar ochraceous ones posteriorly. Cheeks finely roughened, dullish, the pubescence long, very thin and white. Malar space very short, about one-eighth as long as wide. Antennae black, joint 3=4, which are longer than 5 and following joints, the proportion being 4:4:3.5, the middle flagellar joints distinctly shorter than wide and lighter beneath. Prothoracic spine long, slender apically, very conspicuous. Pubescence of thorax mainly black, shortest and sparsest on the almost bare disk, longest and densest in a fringe on scutellum, and on the margins of the thorax, especially anteriorly, these margins also with pale ochraceous hair intermixed. Tubercles with a mat of appressed ochraceous pubescence changing abruptly to gray on pleura, under parts, and a long, dense fringe down the sides of the metathorax. Mesothorax with very coarse, crowded, rather shallow and sometimes cancellate punctures laterally, these becoming much sparser and widely separated on a small disk, all on a finely striately rough-

ened, dullish surface. Scutellum with similar though more elongate punctures on a distinctly subparallel striate surface, the basal impunctation very narrow. Postscutellum roughened, and with long, erect, gray pubescence. Superior face of metathorax defined by a sharp angulation and divided into about a dozen shining pits, square medially but irregular and longer than wide laterally. Enclosure funnel-shaped, very polished and shiny, ridged laterally at base and with the neck short and wide, remainder of posterior plate shiny, coarsely reticulated, the lateral faces of metathorax dullish, minutely tasselate, and with numerous irregularly curved ridges. Mesopleura crowded with coarse punctures. Tegulae rufo-piceous to black. Wings hyaline to well darkened, nervures brownish to deep black, stigma very dark brown to black. Legs black with grayish white pubescence, dense on posterior femora and tibiae, the inner tarsal apices with orange tufts. Posterior metatarsi three and two-thirds times as long as broad, middle joints two and one-half times as long as broad. Anterior coxae with long, blunt, hairy spines. Hind tibial spur pectinate with about twenty-five teeth, the inner one very minutely pectinate. Claws unusually long, deeply medially cleft. Abdomen suboval, shining, the first segment with fine but well-separated punctures, more indistinct and widely separated basally, and sometimes forming a median impunctate line, apically very fine and dense; the enclosed basal portion polished and subimpunctate, and defined by an angulation and a ruff of long, erect, whitish hairs which extend part way down the sides. Segment 2 and following ones more finely and closely punctured, practically bare. Apical margins of segments 1 and 2 depressed, the first one with traces of a fascia laterally, which joins with a complete fascia on base of 2, which with 3-5 has an unbroken fascia on its apical margin. These fasciae are narrow and loose but pure white and strongly contrasting, and are narrowly continued on venter.

♂. Length 8-10 mm. Differs from the ♀ as follows: More slender, and with the whole pubescence longer and denser, that on thorax above pale ochraceous to dull gray, usually with some shorter very dark brown to black hairs intermixed, mostly on disk and scutellum; face with dense hair, concealing the clypeus, yellowish white, pale on vertex where a very few scattered dark hairs are usually present laterally; malar space distinct, about one-fourth as long as broad; antennae long, joint 3 shorter than 4, which is shorter than 5 or following, the proportion being 4:5:6; middle flagellar joints one and one-half times as long as broad; prothoracic spine variable, generally short and inconspicuous; punctures of mesothorax coarse, round and deep, separated though close laterally, and becoming scattered on the disk; mesopleura with close but quite separate punctures; scutellum very coarsely and closely punctured posteriorly, median metathoracic pits more regular; wings clear, nervures and stigma black to pale reddish brown; claws deeply apically cleft, the tibial spurs but indistinctly pectinate; abdomen slender and elongate, closely and coarsely punctured

with round, deep punctures, coarsest on the first segment, which is scatteringly clothed with long, gray hair which forms a fringe down the sides; segment 2 depressed at base as well as apex; fasciae narrow and grayer; basal joint of hind tarsi four times as long as wide, middle joints twice as long as wide.

Genitalia.—Stipes notched, its apex long, falciform, its upper margin recurved, making its inner surface concave, the inner surface of the apex of second and base of apical section with several conspicuous, long vibrissae; sagittal rods parallel throughout, gradually expanded basally; volsella moderate, less than one-half of sagitta; seventh ventral plate unusually large, its lobes long, columnar, apically expanded into suboval sheets, basally with a small, laterally projecting external costa, wholly moderately pilose. (Plate 3, figures 17 and 17*a*.)

TYPE LOCALITY.—New York; types in collection of American Entomological Society.

This is the species wrongly determined by Mr. Cresson as *inaequalis* Say, and renamed by Patton who recognized the true *inaequalis*. Cresson had material from New York, New Jersey, Pennsylvania, Illinois, and Colorado, and I have selected the first mentioned locality as typical, though all the other localities come within the range of the typical form except the last. Mr. Robertson suggests (*in litteris*) that Cresson probably based his description on the Colorado specimens which represent another species (*fulgidus*), to which his name should be applied, leaving the eastern form distinct under the name *spinosus* Rob. But there is nothing in the description to warrant this inference, and the precedence of enumeration and numerical majority of the eastern specimens seems to leave no doubt as to where the name *armatus* should properly be applied.

Patton described as a new species a form having inconspicuous prothoracic spines and fuscous hairs on the vertex and thorax above, naming it *C. scitula,* but Robertson, after examining a cotype of *scitula,* expressed the opinion that *scitula* was the male of *armatus,* in which opinion he is undoubtedly correct. Whether the male referred to *armatus* by Patton really belongs there I have had no opportunity of definitely discovering. Robertson, not knowing of Patton's paper, redescribed *armatus* as *C. spinosa.* Dalla Torre is in error in citing Kansas as the type locality of *armatus,* since the application of the name to Cresson's

cotypes antedates the description of the Kansas specimen eight months.

Specimens from the Transition and Canadian life zones of New Mexico, Arizona, and Colorado differ from eastern specimens in a usually stouter and shorter prothoracic spine in the female, and such specimens form the basis of *C. bigeloviae* Ckll. and *C. brevispinosus* Viereck, typical specimens of which I have had the opportunity of studying. The difference is so slight and unreliable, however, that it seems to me unwise to consider them as distinct in any way. Certain it is that the characters ascribed to *bigeloviae* in the original description, viz., dark flagellum, dark tegulae, smoky wings, etc., have no value whatever in the separation of species in this genus. The Mesilla valley specimen with which *bigeloviae* was compared represents the other extreme of variation in this species, as does also the male described from western Kansas by Patton, and indeed as is shown in most of the specimens from the Upper Sonoran life zone. A large series of *armatus* from Nebraska, in which both sexes are well represented, shows variations from the usual eastern form which seem clearly attributable to the dryer climatic conditions. The pubescence is much paler, there being fewer black hairs on the thoracic margins of the female, especially anteriorly, and less of an ochraceous tinge on the face and mat on tubercles, while the pubescence of the male is all dull grayish white, not at all tinged with ochreous and entirely without black hairs on either the thorax or vertex; the wings of both sexes perfectly clear with testaceous nervures and the tegulae usually testaceous also. Again, three females from Atlanta, Georgia, have the wings heavily darkened and their nervures deep black, while the abdomen is more shining and finely punctured, differing entirely from any specimen of *armatus* from the northern states, although Mr. Robertson, who examined a specimen, remarked that he had specimens just like it from southern Illinois. This variation will probably be found characteristic of the Lower Austral zone. A careful study of *armatus* convinces me that we have here to deal with a wide-ranging, quite variable species in the act of splitting up into several different forms, which are as yet so feebly and

unreliably differentiated as to make unadvisable the recognition of such variants by name, even though correlated with recognized life zones. In all these forms the male genitalia are essentially identical.

Colletes armatus is an autumnal species, flying in New England and the North Atlantic states from August 20 to October 9. It seems to visit chiefly the flowers of *Solidago,* according to my abundant records, although Mr. Robertson considers it oligotropic upon *Compositae,* and probably has taken it upon other flowers. He gives its season in southern Illinois from August 17 to October 7. In Nebraska it flies from August 5 to September 22, chiefly on the goldenrods (*Solidago rigida* and *S. missouriensis*) and rosin-weed (*Grindelia squarrosa*). In New Mexico it flies from July 29 to October 2, and the types of *bigcloviae* were taken on *Chrysothamnus graveolens glabrata.* The range of the species includes practically the eastern half of the United States, from Maine (Waldoboro, Indiantown Island) to Georgia (Atlanta), west to Arizona, New Mexico, Colorado, and the Black Hills (Custer, Hot Springs).

SPECIMENS EXAMINED—Arizona: Base of Humphrey's Peak, 1; southern Arizona, 1; Colorado: 1; Connecticut: Rockville, 1; Stafford, 3; Georgia: Atlanta, 3; Illinois: Carlinville, 1; Indiana: Elkhart, 4; Maine: Indiantown Island, 5; Waldoboro, 6; Massachusetts: Cohasset, 1; Riverside, 1; Nebraska: Lincoln, 45; West Point, 12; Nebraska City, 1; Glen, 5; Broken Bow, 1; New Hampshire: Durham, 4; Hampton, 18; Pelham, 25; New Jersey: Anglesea, 1; Great Notch, 1; Lucaston, 2; New Mexico: Beulah, 5; Pecos, 2; Sapello canyon, 1; San Ignacio, 1; Ohio: Columbus, 1; Pennsylvania: Germantown, 1; Darby, 1; Lawndale, 2; Ogontz, 1; South Dakota: Custer, 6; Hot Springs, 1; Virginia: Falls Church, 4.

Colletes tegularis Swenk.

1905. *Colletes tegularis* Swenk, *Canadian Entomologist,* xxxvii, no. 8, p. 304, ♀ (August, 1905); original description.

1906. *Colletes tegularis* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 292, ♀ (October, 1906); recorded from Albuquerque, New Mexico.

♀. Length 11 mm. Allied to *C. armatus* but with the black hairs on thoracic dorsum few and scattered, confined to the disk and a fringe of longer ones placed in a spaced row around posterior border of scutellum, the pubescence of the vertex and broad anterior border of mesothorax pale grayish tinged with ochreous, the vertex sometimes with a very few, short, dark hairs laterally; pubescence of face whitish, mat on tubercles tinged with ochreous; tegulae pale testaceous; wings clear, their nervures and stigma dusky ferruginous; abdominal fasciae snowy white.

♂. Unknown.

TYPE LOCALITY.—Gering, Scott's Bluff county, Nebraska; cotypes in collection of the author.

This species is exceedingly similar to *C. angelicus,* of which it may prove only a pale variety, but pending the certain identification of the male it seems best to leave its status as above. All of the five specimens so far examined have been taken in August (14–20) and in Upper Sonoran territory.

SPECIMENS EXAMINED—Nebraska: Gering, 2; Agate, 1; New Mexico: Albuquerque, 1; Washington: North Yakima, 1.

Colletes angelicus Cockerell.

1905. *Colletes angelicus* Cockerell, *Bulletin of the Southern California Academy of Sciences,* iv, no. 2, pp. 32–33, ♂ (February, 1905); original description.

♀. Length 10 mm. Very similar to *C. tegularis* but differing in the much deeper ochreous tinge to the pubescence of the face, thoracic dorsum and mat on tubercles, and the creamy fasciae.

♂. Length 10 mm. Resembles very closely the males of *fulgidus, nevadensis* and *armatus* externally, but has broader, shaggier fasciae of a more ochreous tinge. The species can be reliably differentiated only by the characters of the seventh ventral plate, which has the lobes pilose from the lateral bristle tufts to the apex and with a distinct central area of long recurved hairs. (Plate 3, figures 18 and 18*a*.)

TYPE LOCALITY.—Los Angeles, California; types in collection of Professor T. D. A. Cockerell.

The type was collected by Dr. A. Davidson, and the pair examined by me were taken in the type locality by the same collector. Professor Cockerell has compared the male with his type and finds them similar in every way.

SPECIMENS EXAMINED—California: Los Angeles, 2.

1903. *Colletes bigeloviae* Viereck, *Transactions of the American Entomological Society,* xxix, p. 62 (January, 1903); recorded from Beulah on strength of preceding record.

1903. *Colletes brevispinosus* Viereck, *Ibid.,* pp. 62–63, ♀; original description.

1904. *Colletes armatus* Pierce, *University of Nebraska Studies,* iv, p. 24 (April, 1904); recorded from Lincoln, Nebraska.

1904. *Colletes* sp? Morice, *Transactions of the Entomological Society of London,* 1904, part 1, p. 27, pl. ix, figs. 57 and 58, ♂ (April, 1904); illustration of armature and seventh ventral plate of Massachusetts specimen.

1904. *Colletes armatus* Robertson, *Canadian Entomologist,* xxxvi, p. 275, ♀, p. 277, ♂ (September, 1904); in table of Illinois species.

1906. *Colletes armatus* Robertson, *Science,* xxiii, p. 309 (February, 1906); season, food plants.

1906. *Colletes bigeloviae* Cockerell, *Transactions of the American Entomological Society,* xxxii, p. 291 (October, 1906); summary of above records.

1906. *Colletes brevispinosus* Cockerell, *Ibid.,* p. 291; recorded from Beulah on basis of type series.

1906. *Colletes armata* Cockerell, *Ibid.,* p. 292; recorded from Beulah, Sapello canyon and San Ignacio, New Mexico.

1907. *Colletes armatus* Lovell, *Canadian Entomologist,* xxix, no. 11, p. 364 (November, 1907); recorded from Waldoboro, Maine.

♀. Length 10-11 mm. Head short and broad, orbits moderately converging. Clypeus moderately convex, uniformly coarsely striate-punctate and with a very few, scattered pale hairs marginally. Supraclypeal area dullish and with a few deep, round punctures. Face dull, crowded with shallow punctures, the foveae short and impunctate, its pubescence short, dense, grayish white. Vertex with irregularly scattered, large punctures and smaller ones between, on a dullish surface, fringed with long, stiff, black hairs and a few similar ochraceous ones posteriorly. Cheeks finely roughened, dullish, the pubescence long, very thin and white. Malar space very short, about one-eighth as long as wide. Antennae black, joint 3=4, which are longer than 5 and following joints, the proportion being 4:4:3.5, the middle flagellar joints distinctly shorter than wide and lighter beneath. Prothoracic spine long, slender apically, very conspicuous. Pubescence of thorax mainly black, shortest and sparsest on the almost bare disk, longest and densest in a fringe on scutellum, and on the margins of the thorax, especially anteriorly, these margins also with pale ochraceous hair intermixed. Tubercles with a mat of appressed ochraceous pubescence changing abruptly to gray on pleura, under parts, and a long, dense fringe down the sides of the metathorax. Mesothorax with very coarse, crowded, rather shallow and sometimes cancellate punctures laterally, these becoming much sparser and widely separated on a small disk, all on a finely striately rough-

ened, dullish surface. Scutellum with similar though more elongate punctures on a distinctly subparallel striate surface, the basal impunctation very narrow. Postscutellum roughened, and with long, erect, gray pubescence. Superior face of metathorax defined by á sharp angulation and divided into about a dozen shining pits, square medially but irregular and longer than wide laterally. Enclosure funnel-shaped, very polished and shiny, ridged laterally at base and with the neck short and wide, remainder of posterior plate shiny, coarsely reticulated, the lateral faces of metathorax dullish, minutely tasselate, and with numerous irregularly curved ridges. Mesopleura crowded with coarse punctures. Tegulae rufo-piceous to black. Wings hyaline to well darkened, nervures brownish to deep black, stigma very dark brown to black. Legs black with grayish white pubescence, dense on posterior femora and tibiae, the inner tarsal apices with orange tufts. Posterior metatarsi three and two-thirds times as long as broad, middle joints two and one-half times as long as broad. Anterior coxae with long, blunt, hairy spines. Hind tibial spur pectinate with about twenty-five teeth, the inner one very minutely pectinate. Claws unusually long, deeply medially cleft. Abdomen suboval, shining, the first segment with fine but well-separated punctures, more indistinct and widely separated basally, and sometimes forming a median impunctate line, apically very fine and dense; the enclosed basal portion polished and subimpunctate, and defined by an angulation and a ruff of long, erect, whitish hairs which extend part way down the sides. Segment 2 and following ones more finely and closely punctured, practically bare. Apical margins of segments 1 and 2 depressed, the first one with traces of a fascia laterally, which joins with a complete fascia on base of 2, which with 3-5 has an unbroken fascia on its apical margin. These fasciae are narrow and loose but pure white and strongly contrasting, and are narrowly continued on venter.

♂. Length 8-10 mm. Differs from the ♀ as follows: More slender, and with the whole pubescence longer and denser, that on thorax above pale ochraceous to dull gray, usually with some shorter very dark brown to black hairs intermixed, mostly on disk and scutellum; face with dense hair, concealing the clypeus, yellowish white, pale on vertex where a very few scattered dark hairs are usually present laterally; malar space distinct, about one-fourth as long as broad; antennae long, joint 3 shorter than 4, which is shorter than 5 or following, the proportion being 4:5:6; middle flagellar joints one and one-half times as long as broad; prothoracic spine variable, generally short and inconspicuous; punctures of mesothorax coarse, round and deep, separated though close laterally, and becoming scattered on the disk; mesopleura with close but quite separate punctures; scutellum very coarsely and closely punctured posteriorly, median metathoracic pits more regular; wings clear, nervures and stigma black to pale reddish brown; claws deeply apically cleft, the tibial spurs but indistinctly pectinate; abdomen slender and elongate, closely and coarsely punctured

with round, deep punctures, coarsest on the first segment, which is scatteringly clothed with long, gray hair which forms a fringe down the sides; segment 2 depressed at base as well as apex; fasciae narrow and grayer; basal joint of hind tarsi four times as long as wide, middle joints twice as long as wide.

Genitalia.—Stipes notched, its apex long, falciform, its upper margin recurved, making its inner surface concave, the inner surface of the apex of second and base of apical section with several conspicuous, long vibrissae; sagittal rods parallel throughout, gradually expanded basally; volsella moderate, less than one-half of sagitta; seventh ventral plate unusually large, its lobes long, columnar, apically expanded into suboval sheets, basally with a small, laterally projecting external costa, wholly moderately pilose. (Plate 3, figures 17 and 17*a*.)

TYPE LOCALITY.—New York; types in collection of American Entomological Society.

This is the species wrongly determined by Mr. Cresson as *inaequalis* Say, and renamed by Patton who recognized the true *inaequalis*. Cresson had material from New York, New Jersey, Pennsylvania, Illinois, and Colorado, and I have selected the first mentioned locality as typical, though all the other localities come within the range of the typical form except the last. Mr. Robertson suggests (*in litteris*) that Cresson probably based his description on the Colorado specimens which represent another species (*fulgidus*), to which his name should be applied, leaving the eastern form distinct under the name *spinosus* Rob. But there is nothing in the description to warrant this inference, and the precedence of enumeration and numerical majority of the eastern specimens seems to leave no doubt as to where the name *armatus* should properly be applied.

Patton described as a new species a form having inconspicuous prothoracic spines and fuscous hairs on the vertex and thorax above, naming it *C. scitula*, but Robertson, after examining a cotype of *scitula*, expressed the opinion that *scitula* was the male of *armatus*, in which opinion he is undoubtedly correct. Whether the male referred to *armatus* by Patton really belongs there I have had no opportunity of definitely discovering. Robertson, not knowing of Patton's paper, redescribed *armatus* as *C. spinosa*. Dalla Torre is in error in citing Kansas as the type locality of *armatus*, since the application of the name to Cresson's

cotypes antedates the description of the Kansas specimen eight months.

Specimens from the Transition and Canadian life zones of New Mexico, Arizona, and Colorado differ from eastern specimens in a usually stouter and shorter prothoracic spine in the female, and such specimens form the basis of *C. bigeloviae* Ckll. and *C. brevispinosus* Viereck, typical specimens of which I have had the opportunity of studying. The difference is so slight and unreliable, however, that it seems to me unwise to consider them as distinct in any way. Certain it is that the characters ascribed to *bigeloviae* in the original description, viz., dark flagellum, dark tegulae, smoky wings, etc., have no value whatever in the separation of species in this genus. The Mesilla valley specimen with which *bigeloviae* was compared represents the other extreme of variation in this species, as does also the male described from western Kansas by Patton, and indeed as is shown in most of the specimens from the Upper Sonoran life zone. A large series of *armatus* from Nebraska, in which both sexes are well represented, shows variations from the usual eastern form which seem clearly attributable to the dryer climatic conditions. The pubescence is much paler, there being fewer black hairs on the thoracic margins of the female, especially anteriorly, and less of an ochraceous tinge on the face and mat on tubercles, while the pubescence of the male is all dull grayish white, not at all tinged with ochreous and entirely without black hairs on either the thorax or vertex; the wings of both sexes perfectly clear with testaceous nervures and the tegulae usually testaceous also. Again, three females from Atlanta, Georgia, have the wings heavily darkened and their nervures deep black, while the abdomen is more shining and finely punctured, differing entirely from any specimen of *armatus* from the northern states, although Mr. Robertson, who examined a specimen, remarked that he had specimens just like it from southern Illinois. This variation will probably be found characteristic of the Lower Austral zone. A careful study of *armatus* convinces me that we have here to deal with a wide-ranging, quite variable species in the act of splitting up into several different forms, which are as yet so feebly and

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EXPLANATION OF PLATES

(Plates made from camera lucida outlines; the seventh ventral plates are all about 16 × natural size, the armatures all 8½ × natural size.)

PLATE I

Fig. 1. Seventh ventral plate of *C. brevicornis;* 1*a,* armature of same. (Warbonnet canyon, Sioux county, Nebraska.)

Fig. 2. Seventh ventral plate of *C. willistoni;* 2*a,* armature of same. (Warbonnet canyon, Sioux county, Nebraska.)

Fig. 3. Seventh ventral plate of *C. latitarsis;* 3*a,* armature of same. (Lincoln, Nebraska.)

Fig. 4. Seventh ventral plate of *C. gilensis;* 4*a,* armature of same. (Oak creek canyon, Arizona.)

Fig. 5. Seventh ventral plate of *C. compactus;* 5*a,* armature of same. (Clementon, New Jersey.)

Fig. 6. Seventh ventral plate of *C. inaequalis;* 6*a,* armature of same. (Roca, Nebraska.)

PLATE II

Fig. 7. Seventh ventral plate of *C. validus;* 7*a,* armature of same. (Durham, New Hampshire.)

Fig. 8. Seventh ventral plate of *C. distinctus;* 8*a,* armature of same. (Inverness, Florida.)

Fig. 9. Seventh ventral plate of *C. productus;* 9*a,* armature of same. (Hyannis Point, Massachusetts.)

Fig. 10. Seventh ventral plate of *C. lacustris,* 10*a,* armature of same. (Point Abbaye, Michigan.)

Fig. 11. Seventh ventral plate of *C. fraserae,* 11*a,* armature of same. (Beulah, New Mexico.)

Fig. 12. Seventh ventral plate of *C. intermixtus,* 12*a,* armature of same. (Cotulla, Texas.)

PLATE III

Fig. 13. Seventh ventral plate of *C. scopiventer;* 13*a,* armature of same. (Fedor, Texas.)

Fig. 14. Seventh ventral plate of *C. nudus;* 14*a,* armature of same. (Fedor, Texas.)

Fig. 15. Seventh ventral plate of *C. fulgidus;* 15*a,* armature of same. (Big Horn mountains, Wyoming.)

Fig. 16. Seventh ventral plate of *C. nevadensis;* 16*a,* armature of same. (Reno, Nevada.)

Fig. 17. Seventh ventral plate of *C. armatus;* 17*a,* armature of same. (Indiantown Island, Maine.)

Fig. 18. Seventh ventral plate of *C. angelicus;* 18*a,* armature of same. (Los Angeles, California.)

PLATE I

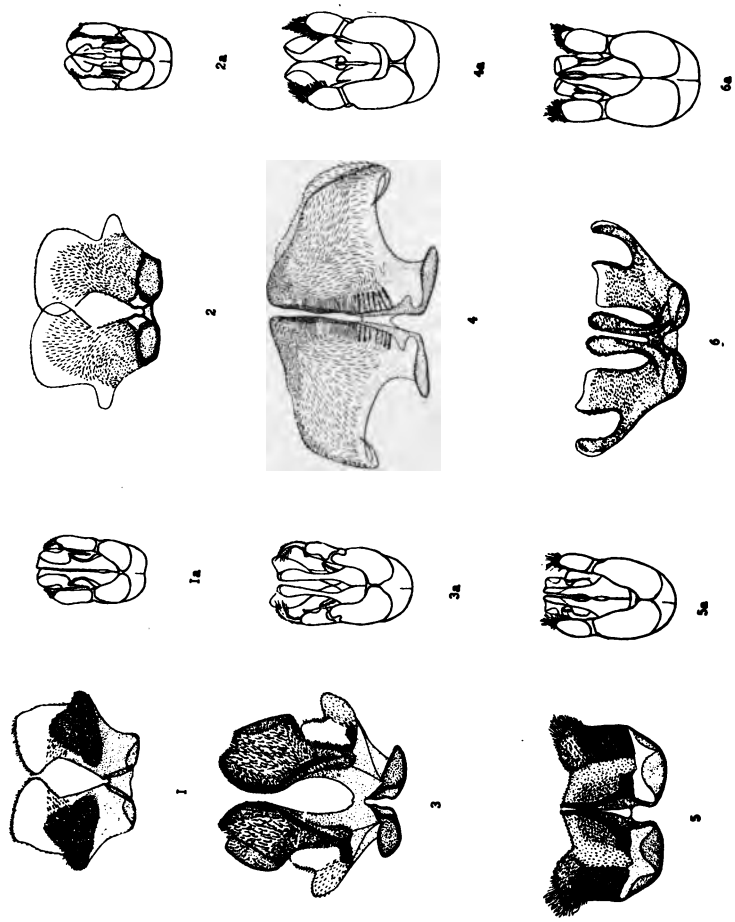


PLATE II

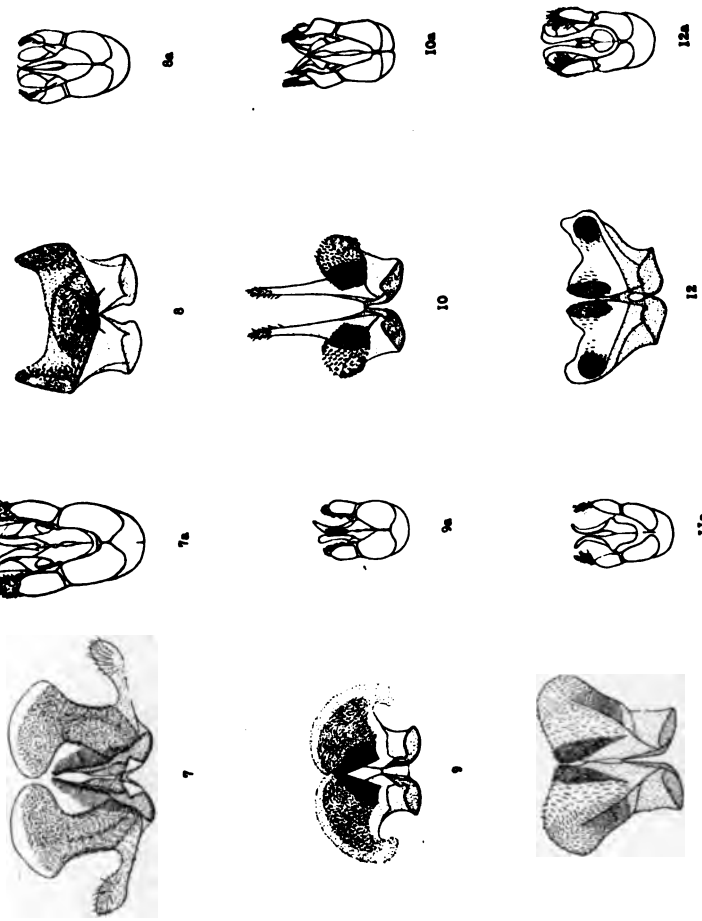


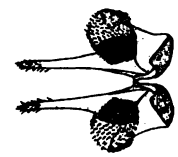
PLATE II

8a

10a

12a

8



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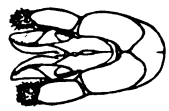
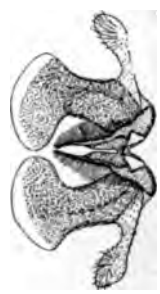
12



7a

9a

11a



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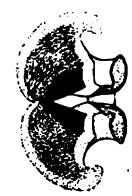

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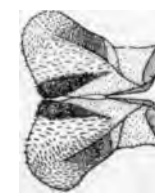

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UNIVERSITY STUDIES

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The Children of the Chapel at Blackfriars, 1597–1603

BY CHARLES WILLIAM WALLACE

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PREFACE

SOME years ago I undertook to edit an old play of one of the children-companies, prefaced by a historical introduction. I found I could not do it conscientiously without finding out the truth about the company that played the piece. An examination of the published works of Europe and America touching the children-actors showed a woeful jumble of variegated error as a result of the romantic or unfaithful treatment of the meager facts. Manifestly the truth was not known, and the facts were in chaos. So the two or three paragraphs into which I had intended to condense the matter for my introduction, I saw vanish into vapor.

This condition of affairs threw me back on the unpromising data, and I began searching archives for new data and investigating the sources and relations of both old and new. The advance has been steady since the first day. I soon found the children's company in question was related to other children-companies, and these in turn to the men-companies, and all of them to the nature and place of acting, and especially to the spirit and form of the drama. My contemplated two or three paragraphs now expanded into a chapter, then a section, then a volume, and finally I am trying, by excluding the bulkiest and least related documents, to confine results within the limits of three volumes.

Meanwhile the contemplated edition of the old play is biding its time. So are certain other editions, all of which can conscientiously and scientifically be undertaken only when this work as a proper historical basis is complete.

The following introductory chapters constitute the first section of volume I. Many of the documents for volume III were assembled and the MS. for volume I and partly for volume II was prepared for the press in 1904–6, during my two-years absence from the University of Nebraska, with residence and research in Europe, particularly in Germany, France, and England. This first section was accepted for the doctorate by the Philosophical

Faculty of Albert-Ludwig University, Freiburg i/Br., where I acquired the degree of Ph.D. in the summer semester of 1906. With a larger courtesy than I could have hoped,—a courtesy characteristic of the true lover of learning in the German universities,—that Faculty voted to grant me the privilege of adding results of contemplated further research at a future time. By virtue of this grace, the present publication is delayed two years. I have accordingly reworked and expanded most of the chapters, incorporating such results of my more recent researches as properly fall within the scope of this section. Fortunately my latest finds have, with but rare and minor exceptions, been mainly in the nature of documentary and final substantiation of conclusions reached from the more slender evidences first used.

In coming to the study of the children-companies, their widely ramifying influences on stage and drama, and the characteristics of their *repertoire* in its entirety, every one finds himself, I suppose, pretty much in the condition I was in when I set about the work. We are hindered by lack of knowledge, and conditioned by our preconceptions derived from the mass of past error and from false perspectives of sectional studies, as the treatment of isolated dramas, or isolating topics running through a series of dramas, and by special treatises that strain facts to maintain a theme. As for myself, I have been forced to give up one conception and one supposed fact after another, until now I find nearly every essential detail in this history is different from what I had supposed from these books and special studies to be the truth.

In the preparation of this work, I have had no theme to maintain, no theory to defend, and none to propose. My sole guide has been the simple desire to find the truth. I have told it as I found it, in plain and simple fashion, so that others may read it. In order that they may judge for themselves, I have given also the evidences, usually in foot-notes. These are therefore the most valuable part of the work. The foot-notes, constituting more than half of the whole work, may seem sometimes burdensome. But, intended for the scholar, they are in fact the only part in which I take special pride, for it has been my desire to assemble materials and references that may hereafter be cited as reliable.

I recognize also that this repository, as all such, must be referred to again and again in working out themes but lightly or not at all touched upon here. Some may find uses for the materials not now anticipated. My narrative, which I hope may never be read separately from the notes, is not intended to be simply a pleasing tale, but is mainly a series of inevitable conclusions thrust up into clear view by the records, data, and events in their own self-established relations.

No page in this work has any other cause or excuse for existence than the presentation of some new fact or conclusion. Among the items of new knowledge some rise into prominence above the others.

The clear differences between the private and the public theatres are sharpened in many details. The influence of the children-theatres, the boy-actors, and their poets on the form and spirit of the drama is presented only in part, the fuller view necessarily awaiting the assembled materials of the complete work. Blackfriars, the model of the modern theatre, is for the first time presented unromantically, on the basis of fresh historical data, with exact dimensions and other details of construction. The location and general structure of the stage is also shown. A comparative view of all the theatres furnishes new items of fact. The accompanying suggestive plats of the Blackfriars and the Fortune, the first attempts of the kind yet made, are in a measure contributive to the same end. While in large part they are merely "suggestive" rather than final, they are at the same time corrective of certain popular impressions, especially as regards the relative positions of stage and audience in theatres of the Elizabethan-Jacobean period.

Certain new data are given from documents concerning Shakespeare, the Globe, and Blackfriars. These documents are therefore now for the first time publicly announced, although they came into my hands long ago. They are vastly more valuable than the three newly discovered Shakespeare documents which I made public in 1905. On the personal side of Shakespeare, they are the most important records brought to light since the discovery of the poet's will a century and a half ago (1747). On the side of the Globe and Blackfriars, the origin of London theatre

"shares" there, and the ownership of them from the first, particularly in reference to Shakespeare's relations to these two theatres, they are more important than the famous Globe-Blackfriars share-papers of 1635, announced by J. O. Halliwell in *The Athenaeum,* August 13, 1870, p. 212, and published by him four years later in *A Fragment of Mr. J. O. Halliwell's "Illustrations of the Life of Shakespeare."*[1] Concerning the counter-petition of the Burbages in the Halliwell discoveries, the reviewer of the above publication, in *The Athenaeum,* February 21, 1874, in the course of a two-page article, gives the judgment (p. 250), which has ever since rightly prevailed, that "It is not too much to say that this is one of the most important passages regarding Shakespeare that has yet been discovered. As to his connexion with the stage it is the most important." But the discoveries now announced very greatly surpass the former ones in these regards. They also give, besides many other items, for the first time the exact location of the Globe, with complete boundaries, as described in several legal indentures. The length and nature of these documents require that I give them out later in a separate publication, with adequate accompanying treatment of the matter involved. They constitute also an essential part of the present work in its complete form.

The commissions to Edwards, Hunnis, and Gyles are new, and the use of Gyles's commission as authority in establishing the Blackfriars in accord with the Queen's will is peculiarly noteworthy. Queen Elizabeth's connection with the establishment of Blackfriars, the maintenance of the Children of the Chapel there at royal expense, and her own attendance at that theatre are not only new, but of special value in understanding much of the theatrical history of the times. The whole course of stage-history from 1597 to 1603, involving Theatre, City, and Crown, made particularly alluring by several drastic orders, notably of 1600–1, and hitherto baffling to scholars, has been cleared up by evidence that seems final. The stage-quarrel between Jonson on the one side and Marston and Dekker on the other, debated variously by scholars for two centuries, likewise finds for the first time its proper place and perspective in history as merely a minor

[1] Privately printed. Fifty copies only. Feb. 1874.

affair subordinate to conditions arising out of the establishment and maintenance of Blackfriars. The long-mooted custom of sitting on the stage has been traced from its origin in the Blackfriars to its termination in France and Germany,—reported last by Goethe,—in 1759.

The Queen's requirements for the training of the Blackfriars Boys in not only grammar-school subjects but in all arts, particularly singing, instrumental music, dancing, and play-acting, gave rise to the masque within the play, exerting wide influence on Shakespeare as well as his contemporaries and successors. The right chronology of the plays, in some cases differing widely from the varied guesses and ratiocinative datings of the past, is established, the date of each play being fixed either exactly or within the narrow limits of one to two months. Unfortunately the full evidences must await a later volume. Incidentally the date of composition of *Hamlet* as in the latter half of 1601 and of its first acting as late 1601 to early 1602, probably at the Christmas season of 1601–2, also establishes itself by final evidences,—which has hitherto been impossible. The significance of certain known documents is made clear by assembling all evidences. Among these the *Hamlet* passage on the Children perhaps will claim chief interest. Every slightest detail of that much-debated passage now becomes clear and historically contributive, as presented in a special chapter. Certain long-mooted *Hamlet* problems not dealt with here must ultimately take account of data presented before they can be finally put beyond speculative deductions in the field of debate and established on the simple and final basis of pure history.

In no instance is the reader asked to take my conclusion as his own, but in every case he is given the evidence from which the inevitable conclusion forces itself upon the judicial mind. If my own interpretations, therefore, agree with the reader's, I shall merely have anticipated him by having had the first chance at the evidences offered.

The materials for this work, as already indicated, were gathered with the primary desire to find the truth in the history of the children-companies. But they have led me far beyond. When I got my materials together and found the relations of facts to

each other, I was surprised to discover that they explained finally matters outside the direct line of the history of the children. For example, the chronology of plays having been established, chiefly on external evidences, I found the surprising feature, already mentioned, of the masque within the play originating in and running through the Elizabethan régime at Blackfriars, stopping short with the Queen's death in 1603. Not more than two Blackfriars plays prior to her death lack this feature, while under James all lack it but two. Similarly, historical evidence served to fix the succession of incidents in the quarrel between Jonson and the so-called poetasters. The Queen's relations to Blackfriars led to an examination of all official orders and other external historical data, clearing up finally, as just said, the unique muddle of opposing royal, municipal, and theatrical conditions of 1597–1603. The same relations led to the collection of all evidences touching the custom of sitting on the stage, with surprising results. Indeed, the whole course of theatrical and dramatic history of the Elizabethan-Jacobean period turns out to be related as either cause or effect, and no feature consequently can be treated as quite isolated. I have found it necessary to take into account every theatre, company, and drama of the period, for the children-theatres are related to all.

As the present work is based wholly upon original sources, the chief weight of reference is given to archives and documents, rather than to interpretative and critical publications. In the course of investigation it has been within my purpose to consult the contributive publications of Europe and America touching upon the field of Elizabethan-Jacobean dramatic literature, criticism, and history,—a library of considerable proportions in itself. Yet I have doubtless overlooked some. Few have yielded materials for this work. Books and articles merely reworking old knowledge or old conclusions,—the main bulk, unfortunately, in this field,—have not been taken account of. Such works as I have had occasion to refer to are sufficiently indicated in the footnotes. They are mainly publications containing original documents. To collect these into a list would in this modern day of special bibliographies be a gratuity by no means complimentary to that select circle for which the work is prepared, and would

at the same time be but a fractional representation, chiefly a misrepresentation, of my labors in research.

I had at first intended to cite some of the most important errors passed down to us and repeated steadily in current publications as true. But except in probably a half dozen cases this has not been done. A complete collection would be voluminous, and a mere citation, while calling attention to curious antiquities or their followers, would have been long and of no other than critical-historical service. When the reader comes upon different conclusions in my predecessors, he will find, I am sure, as I have, that the most important differences arise from the fact that the latest materials were not then available and could not then, as now, be assembled and put into order. Indeed, it may be edifying to lay these earlier works by the side of the present matter in judging this history. Malone, Chalmers, Collier,[1] Halliwell-Phillips, Greenstreet, and an occasional other devotee of the true as opposed to romance in stage-history, collected some materials that fancy and time will not change. Their conclusions are often wide of the mark. Aside from these, the scholarship of the past herein has been mainly the scholarship of opinion, or of hypothesis, or of unsupported oracular declaration. But opinions or hypotheses or conclusions without basis of fact are worthless. So new are the views given by the present materials that not a single opinion or conclusion of my predecessors has served as a basis for restatement. I have gone to contemporary sources and questioned them in every instance where such sources were available. This work must stand, consequently, not upon the authority of predecessors, but upon the merits of its materials and the justness of the conclusions they have called forth. Most of all therefore I commend the judicial perusal of every document, fact, and occurrence offered, in judging the truth of what this history represents.

The examination of printed books, mainly for the contemporary documents they might hold, has been the smallest part of my labors. Most of all have I searched the original records in

[1]Had he been but content with the truth! His work is marred by colossal forgeries. Yet no one can disregard the vast service of Collier in furnishing us with document after document of genuine worth.

European archives. Considerably more than half a million original MS. records of the period of Elizabeth and James, most of them not yet catalogued, have been examined, and the indexes to some million more have been sifted. The resulting discoveries, some of which appear in these introductory chapters, may seem disproportionately few. On the contrary, I am surprised and gratified to find so old a field even thus rich, and am encouraged to complete the work I have been gradually drawn into. It is hoped that the following introductory account may be in some measure gratifying also to those readers who hail every item of new knowledge with an open mind. The question they will weigh is not so much whether the discoveries are greater or less than former ones, but first of all whether they add to the store of information, then how much. Looking at results with the grudging eye of a third person,—for they belong not to me but to historical truth,—I recognize that they are at least sufficient to advance knowledge in this field beyond previous bounds, and clear away some difficulties that have troubled scholars more than a single century.

Yet this history is by no means final. I regard it as little more than pioneer work in the field. No more can be claimed for my part in it than fidelity and loving-care in stating and interpreting the facts in the light of the evidences collected. For the documents themselves, no more can be claimed than partial assemblage, and authoritativeness only so far as they speak. The vast body of documents lie yet undiscovered. From definite evidences gathered in the course of research, I know where many of these are to be found. But it requires time, money, and organization, all of which I shall secure, to complete the work. Not only certain discoveries of especial worth, but the numerous minor ones as a result of definite, persistent tracing give confidence of large results in future research.

No one can be more keenly conscious of the lacks of the present work than I am. Great gaps in the materials have been temporarily bridged as well as possible, but the gaps remain. There are consequently more statements unimpregnably fortified than is pleasing to one who loves research for the sake of truth. The excuse if not palliation for their being, is that they seem to be in

accord with the known facts. They may not be. Future research, and discovery of the facts, not your judgment nor mine, will settle that. I have at least aimed, here as well as throughout the work, to follow whither the evidences lead. In doing this I have spent a due portion of some years in the study of the documents and plays. Every document has been searched many times. The weightier ones have been studied line by line, and every fact or statement compared through a system of copious index notes with other items of possible bearing. That there are errors is to be expected. Many items have doubtless escaped me. Many more, I know, lie yet buried in unrevealed records. Some of these I shall secure before final publication, while some, because of their bulk, I reserve for later presentation,—such as certain signed depositions by George Chapman, Thomas Dekker, Edward Pierce, Thomas Woodford, Gervase Markham, and others, and the voluminous sources of hitherto unknown plays by Chapman, Dekker, Webster, Ford, Rowley, and others. The fragments of the new dramas of course shall be published, with a proper account of them.

I purpose that this work when completed shall, by virtue of the materials presented, be authoritative and permanently useful in its own field. I shall therefore be first to hail the comer with new light from any source.

It remains to acknowledge my obligations for privileges of research.

The institutions to which I am peculiarly indebted for use of books, manuscripts, or documents are the Königliche Bibliothek, Berlin; Hof- und Stadts-Bibliothek, München; Universitäts-Bibliothek, Heidelberg; Land- und Stadts-Bibliothek, Strassburg; Universitäts-Bibliothek, Freiburg i/Br.; Bibliothéque Nationale, Paris; Bodleian Library, Oxford; University Library, Cambridge; British Museum, Public Record Office, Library of the House of Lords, Privy Council Office, and the Guildhall Record Office, London.

I am particularly grateful to Dean L. A. Sherman, Chancellor E. B. Andrews, and the Board of Regents of the University of Nebraska for allowing me the extended leave of absence of 1904–6. This gave me time to cross to Europe and find means

to reach original records. Of persons there, I am indebted first of all to former Ambassador Joseph Choate for official courtesies, and to our present Ambassador at the Court of St. James, Mr. Whitelaw Reid, for additional aid in securing me privileges of research. Superintendent G. F. Warner of the MS. department and Superintendent Barrett of the Reading Room of the British Museum and their staffs have, in the course of years, afforded me larger opportunities, I think, than they themselves are aware of. Dr. Sharp, Superintendent of the Guildhall Record Office, has given me unreservedly the benefit of his accurate knowledge as well as his personal help in researches that I could not otherwise have carried out. Superintendent E. Salisbury, of the literary search department of the Public Record Office, to whose unfailing courtesy and generous consideration and help I am most deeply indebted, has placed at my disposal every facility for searching the national records. The officials of the Legal Room and of the Round Room have also been generous with assistance at all times. The Chief Clerk of the Privy Council Office has likewise been most courteous in producing the ancient records of the King's Council for my use.

To Professors Dr. Wilhelm Wetz, Dr. Roman Woerner, and Dr. Friedrich Kluge, of Albert-Ludwig University, Freiburg i/Br., I owe special thanks for privileges of study with them during the years of 1904–6.

Of all persons concerned, the one to whom I owe most is she to whom alone this work can properly be inscribed, my wife, who since 1906 has been my constant companion and equal fellow in research, and whose vision and judgment have ever been my help.

LINCOLN, APRIL, 1908.

INTRODUCTION

A GENERAL VIEW OF THE FIELD

THERE were two regularly constituted companies of children-actors under Elizabeth and four under James I. Those whose history this work aims chiefly[1] to present were, The Children of the Chapel at Blackfriars, 1597–1603;[2] The Children of the Revels to the Queen at Blackfriars, 1604–8; The Children of the King's Revels at Whitefriars, *ca.* 1603–9; The Children of the Revels to the Queen at Whitefriars, 1610–1613–[15].[3] The last three may be spoken of in a general way under the common title, Children of the Revels.

These three royally patronized Jacobean children-companies and their various imitations and ramifying influences ranging down to the period of the Restoration are traceable directly to their source in Queen Elizabeth's establishment of the Children of the Chapel at Blackfriars, 1597–1603. The source of that establishment was the Queen's will. But the precedent enabling her by a wide stretch to use the Children of the Chapel in carrying out her final theatrical purposes is to be found in the long-standing custom of using them for the divertisement of Royalty and the Court. Practically throughout Elizabeth's reign they had been incidentally employed now and then for this purpose in presenting stage-plays and interludes. Their secular use in acting, singing on festival occasions, and at royal entertainments, precedes the reign of Elizabeth and doubtless antedates our first records of such.

The primary function of the Children of the Chapel Royal was to minister to his or her Majesty's spiritual well-being by trained choral singing at times of devotional service. They formed a

[1] The Paul's Boys of late Elizabeth and up to their termination early in the reign of James are the subject of treatment only in their contributive relations to the history of these royally patronized children-companies.

[2] *I. e.*, to the death of Elizabeth, March 24, 1603.

[3] Practically, 1613; nominally, 1615.

part of the choral body which takes its name from the place of worship, namely, the Chapel Royal.

As Rimbault points out in his *Introduction* to *The Old Cheque-Book*,[1] the Chapel Royal is the most ancient choral body of which there is any authentic record. The first account of it I have found is in the *Liber Niger Domus Regis*[2] of Edward the Fourth's reign, near the middle of the fifteenth century.[3] It was then constituted of one "Deane," twenty-four "Chaplenes and clerkes," two "yeomen" or "Pisteleres," eight "children," one "Master of songe" to teach the Chapel Boys music, and one "Master of ye Gramere" to provide for these children and others connected with the Court somewhat of a liberal education.

At the period with which the present work deals, the last six years of Elizabeth and the first half of the reign of James I, the official constitution was,[4] Dean, Sub-Dean, Confessor of his Majesty's household, six chaplains, a Master of the Children, Clerk of the Cheque, first and second Organist, twenty-four Choristers, called Gentlemen in ordinary[5] (and the same or greater number of substitutes called Gentlemen extraordinary, who served without pay but were in line of succession to a vacancy in the ranks of the ordinary), twelve Children, two Epistlers, two Gospelers, besides the officers of the vestry and common servants.

The Chapel Royal, thus constituted, attended the sovereign wherever resident, according to ancient custom, and as a whole or in part accompanied him during progresses through the coun-

[1] *The Old Cheque-Book, or Book of Remembrance, of the Chapel Royal from 1561 to 1744* (ed. E. F. Rimbault for *The Camden Society*, 1872.)

[2] *Liber Niger Domus Regis* (Brit. Mus., *Harl. MS.* No. 293, fol. 11–12; No. 610, fol. 24–27; No. 642, fol. 71–74, and fol. 132*b*.—New pagination of 1893).

[3] Its exact date is not more nearly known than that it was written sometime within the limits of Edward IV's reign,—4 March, 1461, to 9 April, 1483.

[4] *Cf.* Rimbault, *op. cit.*, 60–62, 127–28; but see also 156.

[5] Dec. 15, 1604, as appears from a warrant, there were thirty-eight Gentlemen of the Chapel. But this seems to count not only the choristers but also the chief officers. See *State Papers, Domestic, James I*, xxxvi, No. 69, Public Record Office. Also noted in the *Calendar of State Papers, Domestic, Addenda 1580–1625*, 450. John Stowe (ed. E. Howes), *Annals, or a general Chronicle of England . . . to end of 1631* (1631), 1037, says there were thirty-three Gentlemen of the Chapel in the first year of James I. See also the King's grant of augmentation, *u. i.*, 3[a].

try. For example, James I took his English choristers, men and children, with him on his journey to Scotland in 1617,—greatly offending his countrymen thereby.[1]

A place of service was provided at the royal expense; likewise residence for members of the chapter, their keep, and also to all but the children[2] a yearly salary.

Since the Restoration, the King's Chapel occupied by the chapter has been the little oratory of St. James's Palace. But in James I's time it was the splendidly appointed chapel at Whitehall, London.[3] This was used, not only for the religious services of the royal household, but for the solemnization of treaties between Spain and England, and France and England; royal and noble baptisms, churchings, and confirmations; marriages of numerous of the nobility in presence of the King; the marriage of Princess Elizabeth and Frederick Prince Elector Count Palatine of the Rhine in 1613; the funeral of James I in 1625; the coronation of Charles I, &c.[4]

On all these and such occasions the Gentlemen of the Chapel partook in the services and shared in the fees,—often 5 *l.* each.[5]

[1] A humorous bit of satire on Scottish manners and customs, evidently written by an Englishman in James I's retinue on this journey, describes how the Scotch received and entertained the King, how they felt about his religious forms, and especially about the "singing men" and the Children of the Chapel. The document was printed in a pamphlet of twenty-one pages at London, 1659, under title, *A Perfect Description of the People and Country of Scotland*, which is reprinted in Francis Osborne, *Secret History of the Court of James the First* (1811), II, 75–89. See appositely 77, 79, 85.

The original MS. is preserved in the British Museum. For the most pertinent part see *Harl. MS.* No. 444, fol. 276*a*. J. P. Collier, *History of English Dramatic Poetry and Annals of the Stage* (1879[3]), I, 391, printed the paragraph on the children only.

[2] The warrant in *State Papers*, Dec. 15, 1604 (*u. s.*, 2[5]) shows the children were on this date allowed an additional 4 *d.* daily,—not as salary, but "as an augmentation of their board wages." This warrant was drawn in accordance with the general grant of augmentation of salaries in the Chapel Royal secured through the influence of several persons, among whom was Nathaniel Gyles, Master of the children. The grant was dated Dec. 5, 1604. It is printed in *The Old Cheque-Book, op. cit.*, 60, and in John Nichols, *The Progresses, Processions and Magnificent Festivities of King James the First* (1828), I, 466, from Sir John Hawkins, *A General History of the Science and Practice of Music* (1776), IV, 11–12. [Nichols errs in saying he takes it from p. 15.]

[3] See Rev. John Jebb, *The Choral Service of the United Church of England and Ireland* (1843), 148.

[4] See notices of these various uses of the Chapel Royal in *The Old Cheque-Book* (*u. s.*), *passim*.

[5] *Idem*.

The Children never on any occasion received fees. Consequently the Clerk of the Cheque has left no record of any sort concerning them, since his official duty seems to have been largely to record such receipts by members of the chapter. Despite this omission, the Children certainly sang with the men-choristers at all solemnities and festivals held in the Chapel, as they constituted an essential part of the chorus.

During a part of the reign of Elizabeth the children occasionally presented plays in the Chapel,—even on Sundays,—before the Queen and her Court. As early as 1569 the first published record of feeling that has reached us concerning the Children as actors shows a bitter Puritanic opposition to this practice.[1] The Queen, however, was passionately fond of the drama, and besides patronizing the men's companies and Paul's boys at Court, she continued throughout her reign occasionally to use her own Children of the Chapel to gratify her pleasure. In her closing years she extended their function of acting beyond occasional performances in the Chapel, and established them as a permanent company at the Blackfriars with requirements to act a play every week. With the increase of time, the spirit of Puritanism grew an important factor to be reckoned with in the government, and Elizabeth's theatrical predilections diminished none. In her Majesty's fondness for the drama, however, and in her purpose to carry out certain theatrical plans rather than in Puritanic opposition is to be sought the cause of her removing the performances of the Children permanently from the Chapel Royal and establishing with them in 1597 the Blackfriars theatre. As we shall see later, she in effect divided the Children on the basis of functions, and maintained one body of them at the Chapel Royal as choristers, the other at Blackfriars to be taught in music, the

[1] "Plaies will neuer be suppresst, while her maiesties unfledged minions flaunt it in silkes and sattens. They had as well be at their Popish service, in the deuils garments."—*The Children of the Chapel stript and whipt* (1569), quoted in Thomas Warton, *History of English Poetry* (ed. Hazlitt, 1871), IV, 217.

The attack is continued in a later page of the same pamphlet thus:—"Even in her maiesties chappel do these pretty vpstart youthes profane the Lordes Day by the lascivious writhing of their tender limbs, and gorgeous decking of their apparell, in feigning bawdie fables gathered from the idolatrous heathen poets."—*Ibid.*

drama, and other arts. These actor-children were kept at her expense, and furnished with rich and abundant stage-apparel.

Out of the original Court-service of the Children of the Chapel evolved the sort of performance they later presented as actors. It was not a long step from religious worship, solemnizations, and festivities, for the Court to employ their excellent singing at other times simply as a rich musical entertainment.

At what time plays were introduced along with the singing, or in addition to it, or in place of it, there are no known records by which we can determine. But as far back as the development can be traced, dialogue and acting seem to have dominated the singing. Near the close of Elizabeth's reign, the entertainment at Blackfriars takes the form of a delightful *musicale* followed by an acted play containing song and masque.

The plays themselves in both earlier and later periods were interspersed with songs as specialties. During the Blackfriars period under Elizabeth, the Boys exhibited their training and skill in instrumental music, singing, and dancing, at intervals through the play. In most of their plays after 1600, and possibly in their lost repertoire of the three years before, they combined these arts into a single exhibition, by putting on the form and variegated dress of fairies, nymphs, or other creatures of fancy and mingling color, music, and dance into the pleasing harmony of the masque.

During James I the elements of dainty device in music and pleasing show are less prominent. We have at any rate no record of the combined musical and dramatic entertainment such as the Duke of Stettin in 1602 reported was the custom at Blackfriars. Music between the acts, however, and songs throughout the play remained though a diminished yet a prominent feature. But the feet of the fairies and nymphs grew clogged with a varied clay, and except twice neither their poets found invention nor the grown-up boys practice in the care-free, lissome masque. In these heavier years, too, the tripping step of comedy gave way to the serious tread of tragedy.

Chiefly out of the Court-performances of the Children in the Queen's Chapel and other royal halls[1] evolved the private *thea-*

[1]The other influence was the church. The influence of school and nobility is reflex rather than direct. A. Albrecht, *Das Englische Kin-*

trum. Farther contributive also was the practice of public rehearsals by the Master of the Revels, leading even to such exhibitions by the Children as seen at Whitefriars in 1580 and at Blackfriars 1581–84.

Nobility imitating royalty provided private plays at weddings, at the Christmas or "Revels" festival, at the entertainment of the Queen upon progresses through the country, and on other festival occasions. Their *theatrum* likewise was a private apartment or hall of the house or castle; and the hearers, invited guests.

When finally the private theatre found a permanent home the structure naturally took as its distinguishing feature the privacy of the noble and royal hall. The hearers could not be entertained as invited guests; but the price of admission was placed so high,—from three to twelve times that of the public theatres,—that the audience was aristocratically select.

The private theatre of first importance in origin and influence was the Blackfriars, established 1597 under patronage of the Queen. It was in fact what may be called an aristocratic public playhouse, with galleries, private boxes or "lords' rooms," artificial lighting, select audiences, seats in the pit as well as in all

dertheater (Diss. Halle, 1883), 1, traces the origin of the private theatre to the Catholic church, and specifically to a cathedral school for training boys to sing in the church service, established at Rome, 590. But we should find ourselves on safer ground if we should trace it back to man's creation,—to the Garden of Eden. Or, seriously, the source is not an institution, but man as the maker of institutions. Man's nature is dramatic and craves representation, as exhibited from the child, the ignorant, and the sage of today, back to the acts of primitive man. Church and sovereign became first sources of influence because of their larger power to institutionalize man's innate desire. But the uninstitutionalized drama and stage is the home, the field, the street, wherever two or more people meet.

The reflex influences of school and nobility are seen in such as Merchant Taylor's (Mulcaster's) school, Westminster, Eton, Oxford, &c., and in such ephemeral, often elaborate, representations in noble houses as historical records report on special occasions.

All these minor influences have practically nothing to do with the development in question, although some have thought so. I am presenting of course the private theatre as a factor in the drama, and the immediate conditions that led to it, not the remote or the unrelated. The only period when the private theatre was such a factor is the period treated in the present work, 1597–1613. The preceding years of Elizabeth were but preparatory to it, and the succeeding years of James and the two Charleses but echoes of it.

other parts of the house, and special privileges of sitting on the stage.

The only other private playhouse at the close of Elizabeth's reign was Paul's, where a theatre was maintained by the church under favor of the Queen.

The Blackfriars, Paul's, and Whitefriars constitute the early Jacobean list of private theatres. All were occupied, as we shall see, by children-companies,—a fact of large significance in theatrical and dramatic history.

Blackfriars and Whitefriars were the "Great Halls" of the old monasteries of these names, refitted to new uses. That is, they were simply large monastic houses rearranged. Paul's was, as it seems, the church Singing School "back of the convocation house."[1] There is no record of any galleries in either Paul's or Whitefriars. They seem to have had no larger seating capacity than that afforded by one floor. It appears that Whitefriars room, however, was larger than Blackfriars, while Paul's was smaller.

The public theatre, of more plebeian origin and patronage, evolved out of the four-walled coach-court of the public inn. Like man's first temples, it was open to the sky and lighted by the heavens. The great yard where the groundlings made merry was not seated. But rows of galleries, after the manner of the inn-balconies, ran around three sides and were provided with seats. A thatched shed-like roof overhung the balconies and the tiring-house. A part or all of the stage was protected by a long sloping roof called "the heavens."[2]

[1] Richard Flecknoe, *A Short Discourse of the English Stage* (*ca.* 1660), in *English Drama and Stage under the Tudor and Stuart Princes, 1543–1664* (ed. W. C. Hazlitt, *Roxburghe Library*, 1869), 276.

[2] In 1888 Dr. K. Th. Gaedertz discovered in the library at Utrecht the only known view of the interior of an Elizabethan theatre. It is a rough, inexact sketch of the interior of the Swan, of probably 1596, by Arend van Buchell after the description of his friend Johannes de Witt, Priest of St. Mary's, Utrecht. The sketch was published by Dr. Gaedertz in *Zur Kenntnis der Altenglischen Bühne* (1888), and since then has been generously reproduced in most of the publications on the period.

The next oldest picture of an interior is on the title-page of a Latin play, *Roxana*, 1632. The *Roxana* and the *Messalina* (1640) picture, both with full title-page from the British Museum, are well reproduced by G. F. Reynolds, *Some Principles of Elizabethan Staging* (*Modern Philology*, 1904–5, II, 582-83). The *Roxana* picture is badly reproduced by W. Keller in *Shake-*

The advantages of the private theatre buildings of the children-companies recommended themselves to the theatrical public at once as an advance in playhouse evolution. The patronage of the Blackfriars is sufficient index in itself. Paul's reopened soon after, and Whitefriars began early in the reign of James. Even in the first half of the reign of James I, one more was added to the list of private theatres. This was the Cockpit,[1] built on the model of Blackfriars.

The new Globe, built in 1613–14, can hardly have failed to adopt some of the improved features of the Blackfriars, which was then occupied by the same company. At least its modern, up-to-date accommodations were such that it was reported at the time to be of all theatres "the fairest that ever was in England."[2]

speare-Jahrbuch (1898), xxxiv, 324, and both are presented in miniature by G. P. Baker, *The Development of Shakespeare as a Dramatist* (1907), 270. The *Roxana* and the *Messalina* are pictures of university stages.

The Red Bull picture from Kirkman's *Drolls* (1672), certainly many years older however than the date indicates, has been often printed.

A contract by Henslowe and Alleyn with Peter Street, carpenter, Jan. 8, 1599–[1600], for building the Fortune on the style of the Globe gives detailed specifications. (In J. O. Halliwell-Phillips, *Outlines of the Life of Shakespeare*, 9th ed., 1890, I, 304; E. Malone, *Shakespeare Variorum*, ed. Boswell, 1821, III, 338–43.)

Another contract by Henslowe and Meade with Gilbert Katherens, carpenter, Aug. 29, 1613, for the building of the Hope (Bear Garden) on the plan of the Swan is also helpful. (Malone, *op. cit.*, III, 343–47; Baker, *op. cit.*, 320–25).

The Diary of Thomas Platter in the university library at Basel gives much information on the public theatres of 1599,—Curtain, Bear Garden, and Globe. (Extracts by Prof. Gustav Binz, *Londoner Theater und Schauspiele im Jahre 1599*, in *Anglia* (1899), xxii, 456–64.

These sources agree in the most general features and furnish most of the knowledge we possess of such interiors.

Some additional sources are presented in the present work.

Many references in the plays themselves and in other contemporary literature here and there give us the feel of what it would be to see a play there.

Stage-directions and other evidences of acting furnish a source for scientific investigation that has never yet been satisfactorily worked out. The latest attempts are by Cecil Brodmeier, *Die Shakespeare-Bühne nach den alten Bühnenanweisungen* (Diss. Jena, 1904), and G. F. Reynolds, *op. cit.*, who makes a tentative study with a promise of a complete treatise on the right line of considering the theatres individually.

[1] The date of building is not sure. J. P. Collier, *op. cit.*, III, 136, takes it to be about 1616–17. F. G. Fleay, *A Chronicle History of the London Stage* (1890), 299, 368, dates it 1617. There is some evidence of an earlier dating. But upon reconsideration it seems not sufficient for a final statement, though it may prove correct.

[2] *Infra*, 35[1].

Even as the Blackfriars and the other private theatres[1] were beginning to make their influence felt, the old public theatre-structures were beginning to pass out of existence into history.[2] On the other hand, "public" performances soon took possession of the private theatres. Consequently, the invidious distinction of "public" and "private" theatres set up by Elizabeth in 1597 was lost sight of within the next generation. Salisbury Court theatre, built in 1629, was the last of the "private" sort. All theatres of later date[3] were "public" but with the chief features of the original "private" house of the Blackfriars, while "private" theatres reverted to what they had previously been and what they still are today,—merely a temporary room or hall for occasional or amateur acting. The new Globe was built 1614, and the new Fortune, 1622. These were the last "public" theatres of the old architecture. All theatres from that time to the present have been modeled on the general plan of the private theatres as first established at Blackfriars.[4]

Likewise our modern orchestral *praeludium,* corresponding to the Chapel Children's introductory *"musica instrumentalis"* at Blackfriars, as also our present orchestral *interludia* between acts and scenes, corresponding to the *intermezzos* of various sorts of musical instruments by the same Boys, can be traced directly to them and not to the public theatres. The latter had at the close of Elizabeth and beginning of James almost no music. In the plays of all the children-companies music is a prominent part of the performance,—more at Blackfriars and Paul's under Elizabeth, as noted before, than at the same or other theatres under James.

Music was always one of the distinguishing features of the private houses of the children-companies. Their plays even as

[1] Blackfriars (1597—Aug. 6, 1655); Paul's (1598—?); Whitefriars (*ca.* 1603—*ca.* 1621); Cockpit (?—March 24, 1649); Salisbury Court (1629——; after the Restoration).

[2] The Theatre (1576–98); Curtain (1577—early James I); Newington Butts (?—early James I); Rose (1592—not used as playhouse after 1603); Swan (*ca.* 1596—early James I); Red Bull (*ca.* late Elizabeth—after 1663); Globe (1599—April 15, 1644); Fortune, (1600–49); Bear Garden (?—1613); Hope (1613—25 March, 1656).

For certain terminal dates in this and the preceding note, see document communicated in a letter by F. J. Furnivall, *The End of Shakespeare's Theatres,* in *The Academy* (1882), xxii, 314–15.

[3] *I. e.,* after the Restoration.

[4] *Cf. infra,* 18[2], 37–54.

they have reached us brim with it. The songs are generally indicated and given in full. So prominent is this feature that a play of undeclared authorship containing many songs,—as *Histriomastix*,—can with practical certainty be assigned to a children's company.

The instrumental music naturally could not so well be recorded. Yet numerous plays of the children give stage-directions for it. From the testimony of Gerschow, secretary to the Duke of Stettin, in 1602 the music program introductory to the play at Blackfriars was an hour long. But this custom is recorded in no published drama; nor is the modern custom today that has grown out of it.

The public theatres had not yet in 1604 adopted the music introductions and interspersions of the private house.[1] But soon after the Burbage company took over the Blackfriars (1608),[2] they began to develop this side of their performance on the lines followed by the former Boys there.[3] The Blackfriars orchestra under their management became famous.[4] I have read that musicians even paid for the privilege of playing in it, but know no proof of the statement.

[1] The *Induction* to *The Malcontent* as played by the King's Men at the Globe in 1604 has the following:—

"*Sly.* What are your additions?

Burbage. Sooth, not greatly needful; only as your salad to your feast, to entertain a little more time, and to abridge the not-received custom of music in our theatre. I must leave you, sir."

Yet Malone, *op. cit.*, III, 111, judges from a cited isolated example from *Gammer Gurton's Needle* (acted *ca.* 1566; printed 1575) that music between acts characterized the theatre from its infancy. He adds, "In a copy of *Romeo and Juliet*, 1599, now before me, which certainly belonged to the playhouse, the endings of the acts are marked in the margin; and directions are given for musick to be played between each act." He believes these directions are of "very old date" because one of them is in ancient style and hand. But the handwriting did not differ widely enough between 1599 and ten years later, when music became more general, for this evidence to amount to anything. And if only one direction is even probably that old the evidence is valueless.

J. P. Collier, *op. cit.*, III, 252, while not declaring himself squarely, seems to hold with Malone.

[2] *Infra*, 44[10].

[3] Certain of the Boys were taken into the Burbage company at this time. Shakespeare's *The Tempest* is probably his first play written for the Blackfriars. See *infra*, 167.

[4] The fame of the Blackfriars orchestra long endured as the foremost music organization of London. Lord Commissioner Bulstrode Whitelocke (1605–75), writing an elaborate and clear account of the masque, with antimasques, of *The Triumph of Peace* by James Shirley (played at Whitehall, 7 Charles I

At what time the other public companies fell in line with this progress of the stage is not known. It may not have been long after. Certain it is that by the time of the Restoration music was regarded by the stage monopoly of D'Avenant and Killigrew as an elaborate essential.—But that has a history of its own.

Both public and private theatres opened with three bugle-blasts, blown some minutes apart.[1] This was not, as sometimes understood,[2] any part of the music, but an announcement of "ready,"—like the modern signal bell of the German theatre calling the audience in from the refreshment rooms when an act is ready to begin;—a signal reduced in American theatres to the winking of the lights.

So much in a general and introductory way on the historical relation and function of the Children of the Chapel Royal as choristers, their occasional function of play-acting at Court, the

(1633) by the members of the four Inns of Court, with the elaborate music in charge of Whitelocke) gives incidentally a word on the fame of Blackfriars music thus:—

"I was so conversant with the musitians, and so willing to gaine their favour, especially at this time, that I composed an Aier myselfe, with the assistance of Mr. Ives, and called it *Whitelocke's Coranto:* which being cried up, was first played publiquely, by the Blackefryar's Musicke, who were then esteemed the best of common musitians in London. Whenever I came to that house (as I did sometimes in those dayes), though not often, to see a play, the musitians would presently play *Whitelocke's Coranto,* and it was so often called for, that they would have it played twice or thrice in an afternoon. . . . It grew to that request, that all the common musitians in this towne and all over the kingdome, gott the composition of it, and played it publiquely in all places, for above thirtie years after."—Dr. Charles Burney, *A General History of Music* (1789), III, 377, from Whitelocke's *MS.* then owned by Dr. C. Morton of the British Museum. The last part of this document containing the payment to the musicians, preparation of the music, and the above passage, is omitted from Whitelocke's *Memorials of English Affairs* &c. (1709[1]; 1853[2]), I, 62, which modernizes spellings, and gives the general air of unfaithful editing.

The excellence of the music at the private theatres of Blackfriars, Cockpit, and Salisbury Court is specially mentioned in the well-known little tract of which the only extant copy of the original edition is in the British Museum, entitled, *The Actors' Remonstrance* (1643), 6–7. Reprinted in *The British Stage* (1822), VI; *The English Drama and Stage* (ed. W. C. Hazlitt, *The Roxburghe Library,* 1869); and Hindley's *Miscellanea Antiqua Anglicana* (1871), III.

[1] A large number of instances might be cited. But for examples, see *Inductions* to *Cynthia's Revels* and *Poetaster* at Blackfriars; and Dekker's *Address to the Reader* in *Satiromastix,*—first played at the Globe, later at Paul's.

[2] See for example Nathan Drake, *Shakespeare and his Times* (1817), II, 217.

consequent rise of the private theatre of 1597–1613 through them, the differentiation of the private and the public theatres, the nature of the entertainments in each, and some of the general results and influences.

Yet a farther introductory word.

The chief influences of the children-companies are less tangible and concern the drama proper. Here it is not possible to state facts with that gross objectiveness, ease, and precision with which boys plump marbles. Nor have I in the following pages attempted to study this field exhaustively by citations and interpretations,—a separate work in itself.

The period of supreme dramatic achievement of the world's history is practically the same as the period of growth, development, and end of the children-companies in the field of competition,—1597–1613. Is this merely a coincidence, or is there some relation existing between the two? It would be a view too injudicial to require evidence in disproof to say the children "carried it away" in this development. They were simply one of the factors. The passionless glass and forthright scalpel, however, show them as a large factor.

It strikes us as somewhat astounding when we look over the list of extant plays written and acted within this period of dramatic splendor and see that fully one-half were produced for and enacted by these children-companies. In the reign of James I up to 1613, the ratio is greater than one-half. If we take the period from 1604 to 1608, we find the balance even more considerable on the side of the children.

This is significant.

It is further significant that every great dramatist of the period except Shakespeare wrote for the children. Jonson, who by common agreement stands next to Shakespeare as contemporary poet and dramatist, did much more than apprentice work for them. He began his career with the children in 1597, and thirteen years later made his highest achievement before their public in *Epicoene*. Chapman ranks at farthest close after Jonson. After his apprenticeship for the public theatres under Henslowe, ending in 1599, he wrote for no other players than the children, so long as their companies existed. Beaumont and Fletcher, who

vie with Jonson and Chapman for place, demonstrated their dramatic power through the same means of appeal to the public until King James terminated the Blackfriars Children in 1608. Still five more of their chief plays were presented by the Boys at Whitefriars from 1610 to 1612. Only with the beginning of the period of dissolution of the children did these poets give their plays to the King's men at Blackfriars and the Globe.

All these are great names. Between these and the numerous minor playwrights stand Marston, Middleton, Webster, Dekker, and Day, all connected, in their best work, with the private-playhouse children.

It would not be true to say that the children's theatre, with Blackfriars as chief representative, was a sort of primary school for bringing up play-wrights and developing actors, as the "Nursery" of 1664 aimed chiefly to be. Nevertheless, it gave to genius an opportunity to express itself in both fields. No men's company except Shakespeare's invited or afforded such freedom. The men's plays, with that illustrious exception, were mainly hack-work, many of them collaborations. As a result, they have little originality, inspiration, or individuality. Their jejuneness, staleness of invention and expression, and general paucity was the butt of Jonson's ridicule,—and justly. Such conditions could not inspire great acting. Consequently, not one of these unexcepted men's companies produced a single renowned actor.

Quite different were the conditions in the Burbage-Shakespeare company and the children-companies, particularly the one at Blackfriars. In both instances the plays were written, not for the common pot of a Henslowean dramatic pawn-shop or literary bureau, but directly for the actors.[1] As a result they were generally not collaborations, but the work of individual authors. They showed that the way to develop genius is not to yoke it to its fellows, but to free it from the furrow, and let both feet and wings aid in the running. Great genius never did nor can collaborate great art. The single Praxitiles, or Giotto, or Raphael,

[1] The proposition that the children acted such plays, mostly splenetic, as were rejected by the men-companies would be funny if not intended to be serious. See A. Albrecht, *Das Englische Kindertheater* (Diss. Halle, 1883), 39.

or Shakespeare, or Wagner is greater than the collaborating world.

The actors too enjoyed a similar freedom, and were not impecunious dependents. The conditions under which both author and actor worked were conducive to excellence of art in its kind.

It is noteworthy of the authors who wrote for both the children and the men's companies, aside from Burbage's,—namely Middleton, Webster, Dekker, Day,—that their plays for the children are better than those for the men. Of those who wrote exclusively for the unexcepted men's companies,—as Wilkins, Smith, Rowley, Heywood, Chettle, Monday, Houghton, Wilson, and a few more,[1]—none rank with the chief authors of the children-actors, and most of them are little if any superior to the poorest,—those who wrote for the Children of the King's Revels exclusively or mainly,—Sharpham, Armin, Mason, Barry, and Markham.

Besides several other excellent actors, two of the three Roscii of the time were fledged in this "aery" of "little eyases," and several others became famous. As will fully appear later, the boys of the children-companies, grown men, ultimately dominated the stage. Their members, after their own organizations closed, are found as leaders thereafter in every company but one, and for more than fifty years their influence was a factor in the theatre and drama.

But the children-theatre was in no respect a primary school to the "common players." It was a lively competitor, both dramatically and commercially. Shakespeare felt that the competition was more on the latter than on the former side. It was, so far as immediate effects were concerned. But the perspective of history shows the same result that sharp competition, commercial or other, always has,—the putting forth of effort to superior excellence. It stimulated genius in the dramatist and in the actor, gave wider range of opportunity to each, and added vastly to the number as well as quality of plays produced.

It is not possible to estimate exactly the tremendous stimulus to dramatic effort by this new element of competition in the field. We know from Henslowe's *Diary,* which has to do only with

[1] *Cf. infra,* 163[2].

men-companies, that from one-half to two-thirds of the plays named therein have never reached us. How many were played by companies of which no diary record was kept we can only conjecture. And how many were written and never accepted it would be futile to attempt to investigate. We can only get from contemporary records that the number of unknown plays was very considerable.

Of the children-companies, we can identify only half of the court plays. It is quite probable that more than half of their publicly acted plays have reached us, but there is ample evidence that we do not have them all. In the case of the Children of the King's Revels at Whitefriars, as we shall see, there were conditions that practically prevented publishing any of their plays while the company existed. It is remarkable that we have any of their plays at all.

It is impossible to characterize the children's plays in the gross except very generally. Some have literary merit, many fall short. With the exception of those by Jonson and Chapman, their comedies and comic situations of tragedies have generally a low moral tone; not differing in that respect, however, very greatly from the rest of the plays of the age. On the whole they are fuller of personal, political, and local allusions than those of the men-companies. Their tragedies contain much rant, bombast, and turgidity. Their plays seem to take color not a little from the courtly, fashionable, or smart audiences and from the irresponsible nature of the actors. The irresponsibleness of the youthful actors can not but account at least in part for the political indiscretions of *Eastward Ho, The Isle of Gulls,* and the two *Biron* tragedies.

By Elizabeth's favor and patronage of the Blackfriars Boys, children-companies, and particularly this company, became the fad. It took the genius of Shakespeare to counterbalance their influence. From his testimony of how he felt about them, it is probable that their competition was one of the factors that entered into the best efforts of his genius. Good plays and good acting by his company were the necessary countervail.

Thus much for a background.

A knowledge of the proper place and relation of these chil-

dren-companies in the development of both theatre and drama gives just recognition to the value of every slightest detail of their history. Hitherto nothing very definite has been known about the Children of the Chapel at Blackfriars and their offsprings, the Children of the Revels under James, their careers and influences. It is hoped that the following pages, based upon original records, documents, and the plays, may contribute to definiteness and add to the sum of knowledge.

The history developing out of preceding conditions and evolving into the influences noted concerns itself specifically with the companies of children, their playhouses, management, membership, and performances. The boys do not emerge into individual prominence until they approach the end of their career. They are from the first little more than puppets in the hands of their superiors. Hence their history is very much the history of their managers.

The point of main divergence in the evolution of the Chapel Children, swinging them into the active current of dramatic competition, dates from the first royal commission to Nathaniel Gyles for taking up children, and the opening of the Blackfriars by Henry Evans, 1597. The termination of the theatrical activity of the resulting Children of the Revels companies is 1613–[15]. Imitations and echoes of this activity continue to the Restoration.

CHAPTER I

THE BLACKFRIARS THEATRE BUILDING

THE remodeling of one of the Priory buildings of the dissolved monastery of the Blackfriars at London into a theatre, the leasing of it by Richard Burbage to Henry Evans for a playhouse, and the taking up of children therefor under the first royal commission to Nathaniel Gyles, Master of the Children of the Chapel Royal, date the beginning of this history. These three events took place in 1596–97.

February 4, 1596, James Burbage, "the first builder of playhouses,"[1] purchased through Sir Thomas Cawarden's executor, Sir William More of Losely, for £600[2] certain "romes" of the dissolved monastery "of the late Blackfryers Preachers."[3] In November he was engaged in remodeling the structure for a theatre,[4] in which month the inhabitants of the precinct petitioned[5]

[1] *The Globe-Blackfriars Share Papers of 1635*, in J. O. Halliwell-Phillips, *Outlines of the Life of Shakespeare* (9th ed. 1890), I, 317. James Burbage built "The Theatre" in 1576, which was in fact the first modern theatre in England. But the commonly accepted view that this is the earliest theatre-building in England is not quite correct. Upon the contemporary evidence of Bishop Grandisson there was a theatre in existence in which "ludi" were presented at Exeter in 1348. See two Latin mandates of the Bishop directed against the doings at this theatre, printed in *Register of Bishop Grandisson* (ed. F. C. Hingeston-Randolph), II, 1055, 1120; reprinted in part, with comments, in E. K. Chambers, *The Mediaeval Stage* (1903), I, 383, II, 190.

[2] "Our father purchased it at extreame rates," say Cuthbert, Winifred and William Burbage in the *1635 Share Papers* (*u. s.*).

[3] *Deed of Sir William More to James Burbage, 4 February, 1595–*[6]. Original indenture at Loseley House. Abstracts in *Appendix to Seventh Report of the Royal Commission on Historical Manuscripts* under "The Manuscripts of William More Molyneux, Esq., of Loseley Park, Guildford, co. Surrey" (1879), 653*b*. *In extenso* in Halliwell-Phillips, *op. cit.*, I, 299–304.

[4] *Petition of the Inhabitants of Blackfriars, u. i.*

[5] *Petition of the Inhabitants of Blackfriars Precinct to the Queen's Privy Council, [Nov., 1596]*. The original document has not come to light. But an undated copy of it made *ca.* 1631 is preserved in the English national archives, the Public Record Office, *State Papers, Domestic, Eliz.*, cclx, 116. Printed frequently; *e. g.*, Halliwell-Phillips, *op. cit.*, I, 304.

The petition does not give the

against his procedure.[1] The opposition however went for nothing.[2] The work of reconstruction was completed and the ancient Priory received, under permission of Elizabeth, the new baptism of the drama by which it became in its time the most famous, and historically as the model of the modern theatre-building, the most important structure in English stage-history.[3]

The long prevalent erroneous belief that Shakespeare was connected with the Blackfriars from the time of this new birth roused a century of antiquarian interest in the ancient monastery to which it once belonged. As a result, its monastic history has been stated again and again, while the erroneous notions concerning it as a theatre permeate the thousands of critical and commentarial writings of the past hundred years touching the Elizabethan-Jacobean drama and stage. The truth concerning Blackfriars for the first twelve years after Burbage's purchase

date of the original document. But the date is referred to as November, 1596, in *An Order for the suppression of Blackfriars theatre by the Corporation of the City of London,* the original entry of which I have examined in the City archives of London at the Guild-hall, *Repertory 34,* fol. 38*b*, under date "xxi° die Januarij 1618" [=1619]. Frequently printed; *e. g.,* in Halliwell-Phillips, *op. cit.,* I, 311.

[1] For Mr. J. P. Collier's misdating of this petition as 1576 (*History of English Dramatic Poetry and Annals of the Stage,* 1831[1]; 1879[3], I, 218*sqq.*), to support a certain theory, his assuming another petition in 1596 (I, 287 *sqq.*) and his forging of a counter-petition thereto concerning Shakespeare and his fellow-actors (I, 288) in further support of his theory, his consequent placing of Shakespeare's company and the children-actors in competition in the Blackfriars theatre where they "shared a divided kingdom,"—the children acting there in summer and the Shakespeare company in winter (I, 360)—, as scholars are still repeating even in this present year; and for the long train of connected and consequent errors that permeate the many works of reference, both cyclopaedic and special, in this field, occurring in even some of the most important of recent literary-historical dissertations done for the doctorate, see *Historical Preface,* vol. I, of my complete work.

[2] See *infra,* 53, 152, 153–54[2], 161[1].

[3] The Italian-French influences manifested under the D'Avenant-Killigrew theatrical monopoly of London at the beginning of the Restoration period were mainly scenic, operatic, and otherwise spectacular rather than structural. Agreeable with this conclusion, reached independently, see the latest scientific research in the field of French influences in England:—L. Charlanne, *L'Influence Française en Angleterre au xvii° Siecle, Le Théâtre et la Critique* (Thèse de l'Université de Paris, 1906), chap. III, "L'influence française au théâtre," 58–85.

The new theatre-buildings of D'Avenant and Killigrew do not seem to have differed widely in form and main features from the Salisbury Court, the Cockpit (Phoenix), and their model, the Blackfriars. The architecture of the original "public" theatre, of course,—repre-

of the building is interwoven with the history of the company of boy-actors who held its boards. Its earlier history is connected with monastic annals and the office of the Master of the Revels, and may here be stated briefly as a necessary preliminary.[1]

The Dominican or Black Friars in 1221 made Holborn, London, their first point of settlement in England.[2] In 1276 they begged a new and larger site. Here they built and for nearly three centuries maintained the famous monastery that has left to commercialized London no other heritage or relic than such commemorative names as "Blackfriars road," "Blackfriars bridge," "Blackfriars pier," "Blackfriars school."

The property lay at the extreme southwest corner of the ancient City of London, partly within the old Roman wall, but mainly without.[3] The wall then ran straight on from Ludgate down to the Thames. It crossed the grounds soon to be used by the Friars for their fine old conventual church and cloisters, and passed just a few yards east of the site of the later Blackfriars theatre, grounds now occupied mainly by *The Times* buildings.

Very soon after acquiring the tract, the Black Friars through their powerful fellow, Archbishop Kilwardby of Canterbury, were influential enough to secure an order to tear down the old city wall that crossed their acquisition. In compensation they

sented by "The Theatre," Curtain, Rose, Swan, Globe, Fortune, Bear Garden, and Hope,—perished in its own generation and left little influence upon the style of the modern theatre-building. For certain *data, cf. infra, passim.*

[1] For *data,* see John Stowe, *Survey of London* (1603), 341*sqq.; id.* (ed. 1633), 373 *sqq.; id.* (ed. Strype, 1744), I, 667–80; *id.* (continued by Edmond Howes), *Annales, or A General Chronicle of England* (1631); A. J. Kemp, *Loseley MSS.* (1835), 16, 73, 175, 186; *Appendix to Seventh Report of the Royal Commission on Historical Manuscripts* (1879) under "The Manuscripts of William More Molyneux, Esq., of Loseley Park, Guildford, co. Surrey," 596*b*–681*a;* Sir William Dugdale, *Monasticon Anglicanum* (ed. Caley, Ellis, and Bandinel, 1846), VIII, 1847; William Bray, in *Archaeologia,* XVIII, 317*ff.;* T. F. Ordish, in *The Antiquary,* XIV (1886), 23; and item-references, *infra.*

[2] John Stowe, *op. cit.* (1633), 487*b,* 373*b.*

[3] In the yeere 1276. *Gregory Rokeſley,* Maior, and the Barons of *London,* granted and gave to *Robert Kilwarby,* Archbiſhop of *Canterburie,* two lanes or wayes next the ſtreet of *Baynards Caſtell,* and the Tower of *Mountfichit,* to be destroyed. On the which place the ſaid *Robert* builded the late new Church, with the reſt of the Stones that were left of the ſaid Tower. And thus the *Black-Fryers* left their Church and houſe by *Oldboorne,* and departed to their new."—*Idem,* 487; also 373, with slight change in wording.

built a new wall which served on the one side as a continuation of the city wall shutting them in from outside danger, and on the other side as a means of isolation from the City proper. This new wall ran westward from the old Ludgate down the slope, approximately along what is now Pilgrim street, to a point a few yards south of Fleet bridge,—now the site of Ludgate circus;—thence southward along the Fleet ditch,—present New Bridge street,—to the Thames;[1] thence along the Thames to the east side of the old Baynard castle site;[2] thence with broken saw-teeth irregularity northeastward, enclosing Mountfitchett's Tower and angling up the Ward Row,—later Wardrop, Wardrobe, now St. Andrews Hill,—to Carter lane; thence in an irregular diagonal northwestward past the end of Creed lane to the original starting corner adjoining Ludgate.[3]

This walled precinct of the Blackfriars was a sanctuary inviolate, within which the will of the Friars was supreme over laws of city and state.[4] It was a liberty independent of City and society in matters of control, yet claiming protection from both, just as in the case of all similar religious orders of the time. No one, even though an official from the City, might enter within the four constantly guarded gates of its walls without permission.

The monastery with all its rights and possessions was, upon the dissolution of the Catholic religious orders by Henry VIII, surrendered to the Crown November 12, 1538.[5] Its value in yearly income was then 104 *l.* 15 *s.* 4 *d.*[6]

Upon the dissolution of the order, the liberties and privileges of the Friars were granted by Henry VIII also to the Friars'

[1] "Now here is to bee noted, that the VVall of *London,* at that time, went ſtraight South from *Ludgate,* downe to the river of *Thames:* But for building of the *Blacke Friers* Church, the ſaid VVall in that place was by commandement taken downe, and a new VVall made, ſtraight VVeſt from *Ludgate* to *Fleet bridge,* and then by the water of *Fleet,* to the River of *Thames,* &c."—*Idem,* 405.

[2] This is the original castle of Baynard and Fitzwalter, which was given to the Friars. It must not be confounded with the later, larger castle built a little to the east in 1428 by Humphry, Duke of Gloucester, and shown prominently as "Baynards castle" in all ancient maps after that date. See also W. J. Loftie (*u. i.*), 80.

[3] On preceding data as to site, walls, &c., *cf.* the various ancient maps of London. Also, *cf.* W. J. Loftie, *London* (*Historic Towns,* ed. E. A. Freeman & Wm. Hunt, 1887), 76–80.

[4] *Cf. infra,* 21[1].

[5] John Stowe, *op. cit.* (1633), 374.

[6] *Idem, op. cit.* (1603), 342; (1633), 374; (ed. Strype, 1744), I, 668*a*.

worldly successors,[1] and became from that time forth matter for constant contention between the inhabitants of the precinct and the Crown on the one side and the persistent City administration assertive of authority on the other until late James I. This chronic condition shows itself acutely in the opposing attitudes of Queen Elizabeth and the City authorities toward the establishment and maintenance of Blackfriars theatre as discussed in succeeding chapters.[2]

The buildings of the Blackfriars precinct were situated on the high embankment north of the Thames and east of the old Fleet ditch,—now New Bridge street. They included[3] besides the little church at St. Anne's and numerous shops and dwellings, the imposing conventual church 220 feet long from east to west by 66 feet wide; a churchyard on the north 200 feet by 90 feet; the cloisters on the south, comprised in a square of 110 feet; and to the west of these, the little chapter-house and the large Priory buildings, one of which standing on the site of the present "Publishing Office" of *The Times,* and opening on a short, narrow, irregular passage-way, still called "Playhouse Yard," became the Blackfriars theatre in 1597.

Edward VI, who succeeded to the throne January 28, 1547, put this particular building to a new use, which probably determined its ultimate service to the drama. Soon after his accession he had all the apparel and furniture for the revels and masks at Court removed to it from Warwick inn.[4]

Here also Sir Thomas Cawarden, one of the first Masters of the Revels,[5] had his office and rehearsed, doubtless in the great

[1] The nature and extent of these liberties and privileges with arguments in their defense are set forth in a lengthy brief and the testimony of witnesses, published under the heading, "Notes and Articles for maintenance of the ancient Liberties and Privileges of the late diſſolved Black Friers, neere Ludgate in London," in John Stowe, *op. cit.* (1633), 375–80. These documents give the inhabitants' side of the long controversy. For the City's side, see *infra,* 154[1], 154[2]. See also, at Loseley House, documents (*temp.* Eliz., undated) on the first foundation of the Blackfriars and the liberties granted the same. Noted in *Hist. MSS. Com., op. cit.,* 663*b*.

[2] See *infra,* 54[1]–54[3], 148–62.

[3] For items, see survey, taken by Hugh Losse, the King's surveyor, 4 January, 3 Edward VI, preserved among the Loseley MSS. Noted in A. J. Kemp, *op. cit.,* 175; *Hist. MSS. Com., op. cit.,* 606*a*.

[4] See expense account for this removal in Kemp, *op. cit.,* 73.

[5] Sir Thomas Cawarden is generally believed to have been the first incumbent of the office of the Master of the Revels. Letters patent

hall, companies of actors in masques and interludes or plays chiefly for performances at Court,[1] and occasionally also for similar diversions at the houses of noblemen.[2]

After thus using the building for three years, Edward VI made Sir Thomas Cawarden a present of the entire Blackfriars precinct not already donated to other favorites,—the two churches, the cloisters, the priory houses, shops, residences, and lands,—by letters patent dated at Westminster March 12, 1549–[50].[3] Not long afterwards, the office of the Revels and all the King's theatrical properties were removed to St. John's, Jerusalem, where they remained until *ca.* 1607.[4]

of his appointment, dated March 11, 1545–[6], are printed *in extenso* in Thomas Rymer, *Foedera,* XV, 62; original at Loseley House, and noted in *Hist. MSS. Com., op. cit.,* 602*b*–603*a*.

Recently Dr. Rudolf Brotanek, *Die Englischen Maskenspiele* (*Wiener Beiträge zur Englischen Philologie,* ed. Dr. J. Schipper, XV), 99, 110–11, has shown that two men were Cawarden's predecessors, —Harry Wentworth, 1510, and Sir Henry Guildford, 1514. Dr. Brotanek's source of information is, *Letters and Papers, foreign and domestic, of the reign of Henry VIII,* arranged and catalogued by J. S. B[rewer] (4 vols. 1862), II, 1492, I, 958, I, 718*ff*.

[1] See documents at Loseley House; referred to in *Hist. MSS. Com., op. cit.,* 602–15, *passim*.

[2] *Idem,* 597*a;* 608*b*. Here for example, 20 May, 1553, the Earl of Northumberland, presuming upon the custom, begs Sir Thomas Cawarden to prepare or "apoynt out a couple of fayre maskes, oon of men and another of women" for presentation the following Thursday at a triple wedding,—a daughter of the house of Northumberland with the Lord of Suffolk's son, another daughter with Lord Hastings, and one of the Lord of Suffolk's daughters with the Earl of Pembroke's son.

Also *idem,* 614*a*. 18 July, 1558. Thomas Coppley entreats Sir Thomas Cawarden of his courtesy to "lend the vse of one of" his "maskes" for the domestic celebration of the writer's marriage.

[3] See *Deed to James Burbage,* in Halliwell-Phillips, *op. cit.,* I, 301*c;* also *Repert. Orig. MS.* (Brit. Mus.), III, 127*b*. See farther *Letter-Book Z,* fol. 23*b* (Guildhall Record Office, City archives of London). This date, in the document on the "Liberties" of Blackfriars published in Stowe, *op. cit.* (1633), 376*b*, is stated thus: "in his Letters Patents dated the 12. day of May" &c. "May" is certainly error for "March," which is given in all the other records. The present document, for example, (in *Letter Book Z,* fol. 23*b*) gives it, "by his *lett*res patentes dated at westm*inster* the xijth of Marche, in the fourth yeare of his Reigne." This valuable historical document, dated January 27, 1579, has never been printed. See further, *infra,* 154[1].

[4] See *Privy Seal* from James I to Edmund Tilney, Master of the Revels, for allowance of 20 *l.* yearly for rent of "a house convenient for the Execution of the Office of o^{r} Revelles" dated "at o^{r} Pallace of Westm^{r} the eight and Twentith daie of December in the ffifte yeere of o^{r} Raigne" &c. [= 28 Dec. 1607]. The document is preserved in the Public Record Office and has not, I believe, been printed. I have

Sir Thomas Cawarden, the new possessor, made material changes in the precinct. One of his first acts was to demolish the noble old conventual church[1] as well as the little church of St. Anne's.[2] He seems to have planned to make his acquisition the residence-quarter for nobles and lords. The splendid mansions and noble society that we find there a little later show how well he succeeded.[3]

No material changes were made in the Priory House, for between 1580 and 1584 we hear of plays being acted there. Three evidences establish the fact.

made a transcript of it and am publishing it *in extenso, u. i.* The original may be consulted in the bundle of Privy Seals for "December, 1607."

The new office-rooms, rented thus on account of granting St. John's to Lord Aubigny, were in the old Whitefriars monastery, separated by only a wall from the Whitefriars theatre there, in which the Children of the King's Revels held forth. The removal from St. John's and relocation of the Revels office occurred, as this document shows, at least four years earlier than hitherto supposed. See, for example, Peter Cunningham, *Extracts from the Accounts of the Revels at Court,* &c. (*Shakespeare Society Publications,* 1842), xlviii, where is made the statement, hitherto universally accepted by scholars, that St. John's was granted to Aubigny and the office of the Revels removed to St. Peter's Hill in 1611. On the contrary, the office was removed first to Whitefriars, as above, in or before 1607, and to St. Peter's Hill later. See further under *The Children of the King's Revels at Whitefriars* in my forthcoming work on the drama and stage of Shakespeare's time, vol. I; also, the above document *in extenso,* vol. III.

[1] In May, 1900, while tearing down an old building on the north side of Ireland Yard,—No. 7, between Friar street and St. Anne's Churchyard,—and excavating for a new structure, workmen brought to light a fine old specimen of Norman architecture in the form of walls and arches, 16 feet high, *ca.* 27 feet wide, and 40 feet long. See description and colored plate from a painting of the ruins by Philip Norman, *London Vanished and Vanishing* (1905), 115–18, with further reference to an earlier article by the same author in the *London Topographical Society's Annual Record* (1901).

It has been thought that these ruins, now demolished, were a part of the old Blackfriars conventual church. But taking the known dimensions of the cemetery 90 x 200 feet, the church 66 x 220 feet, and the cloisters 110 x 110 feet, a total of 266 feet north and south by 220 feet east and west, and measuring down from Carter Lane on any scale map, it seems almost beyond doubt that the ruins occupied the site of one side of the ancient cloisters. The nature of the architecture and the width of the ruin, 27 feet, divided into two equal aisles by a row of four marble pillars supporting the stone vaulting of the roof, suggests farther that this is a ruin of the ancient Blackfriars cloister, just south of which stood the theatre.

[2] See further John Stowe, *op. cit.* (1603), 341–43; *id.* (ed. 1633), 374*b*–375*a*.

[3] Of course there were others also interested to the same end. See, for example, documents in Stowe, *op. cit.* (ed. 1633), 377*b*.

About 1581 Stephen Gossen gives us to understand that a great many comedies were being acted at Blackfriars.[1] In 1584 Lyly's *Campaspe* and his *Sapho and Phao* were published. Each contains two prologues,—"The prologue at Blackfriars," and "The prologue at Court." There is no known documentary declaration as to what company or companies played at Blackfriars then. But the two plays named were, as their title-pages show,[2] presented conjointly by the Paul's Boys and the Children of the Chapel. It is then likely that under their respective Masters the same joint presentation of at least these two plays and possibly others was made at Blackfriars.

There are no further evidences that the house in question was used as a theatre prior to its purchase and remodeling by James Burbage, 1596–97.[3]

At some undetermined time between the above use and the purchase by James Burbage Feb. 4, 1595–[6], the large hall of the second floor was divided into rooms,[4] and the entire building was converted into apartments for residence and lodging.[5]

The site of Blackfriars theatre is well known mainly to theatrical histories. In busy modern London, it is in fact quietly secluded in a tract that corresponds roughly to the ancient possessions of the monastery and that is bounded by two of the busiest streets of London on the north and west, near the lines of the ancient wall. If you are at St. Paul's, and wish to reach the site of the Blackfriars theatre, go southwestward five minutes

[1] "But in Playes either those thinges are found that never were, as Cupid and Psyche plaid at Paules; and a great many Cõedies more at ye Blacke friers, and in euery Playe house in London."—Stephen Gosson, *Plays Confuted in Five Actions* (*ca.* 1581), reprinted in *The English Drama and Stage* (ed. Hazlitt, *Roxburghe Library*, 1869), 188.

[2] "A most excellent Comedie of Alexander, Campaspe, and Diogenes, played beefore the Queene's Maiestie on twelfe day at night by her Maiesties Children, and the Children of Paules. Imprinted at London, for Thomas Cadman, 1584." [First edition.]

"Sapho and Phao, played beefore the Queene's Maiestie on Shrovetewsday by her Maiesties Children, and the Boyes of Paules. Imprinted at London by Thomas Cadman, 1584."

[3] For notice of the Collier forgeries and the consequent errors still followed by literary historians, see *Historical Preface* in forthcoming complete work.

[4] " . . . all those seaven greate upper romes as they are now devided, beinge all uppon one flower and sometyme beinge one greate and entire rome."—*Deed to James Burbage, Feb. 4, 1595–[96]*, in Halliwell-Phillips, *op. cit.*, I, 299.

[5] See deed, *u. s.*

through narrow, crooked lanes or little streets or foot-ways down the hill to the elevated railway, thence alongside of it down Water Lane southward to Playhouse Yard. Or if you are at Ludgate circus at the foot of Fleet street, cross New Bridge street diagonally to the right. Then at the right of the railway station go up Union street, one street south of the line of the old north wall of the Friars, up to Water Lane, thence southward as before.

But unless your admiration for things ancient in city construction and for unfrequented aimless little crevasselike streets is strong, you may hesitate to venture alone the whole of either of these shorter general routes.

You may, however, take a more frequented way. Suppose you come down Fleet street. When at the bottom you reach Ludgate circus, turn to the right down New Bridge street. Then just before reaching Blackfriars Bridge on the Thames, turn left into Queen Victoria street. A few steps take you to Water Lane, along which runs the elevated Southeastern and Chatham Railway. Go north on Water Lane up the hill seventy-five paces, and you reach at your right "Playhouse Yard,"—the name given to the little passage in memory of Blackfriars theatre. This is not a "yard" or a court, but a narrow, irregular way used by foot-passengers. With a width varying to 30 feet, it runs east 90 feet butt against a building which occupies probably the site of the old Pipe Office, adjoining the entrance to the "Publishing Office" of *The Times*,—approximately the place of the north entrance to the Blackfriars theatre. Here the passage jogs left into a wide unsanitary corner pocket, then narrows off in its original direction to about 12 feet for a distance of 90 feet farther, where it again jogs off left and becomes Glasshouse Yard,—so named from the glass-factory that used to stand here near the theatre.[1] It is an observation made by foreign visitors to London and confirmed by maps since the beginning of its history, that a given street undergoes a change of name for every im-

[1] "Like the Glass-house *Furnace* in Blacke-friers, the bonefires that are kept there [in Hell], neuer goe out."—Thos. Dekker, *Newes from Hell* (1606), *Non-dramatic Works* (ed. Grosart, *Huth Library*), II, 97.

In the deed of a messuage or dwelling adjoining Blackfriars theatre, given by Sir George Moore to Cuthbert and Richard Burbage 26 June, 1601, a passage or way from it is mentioned, "which leadeth towards the glassehouse nowe in the tenure of Sir Jerom Bowes,

portant place it passes. So in the present case, this passage in turn, a few steps farther on, is continued as Ireland Yard, which probably was the north boundary of the residence property Shakespeare purchased here in 1613,[1] and takes its name apparently from William Ireland who then occupied the house.[2]

Within the fifty years next succeeding Sir Thomas Cawarden's acquisition of the precinct, the immediate environs of the Blackfriars theatre site had become one of the most aristocratic residence districts of London. Henry Carey, Lord Hunsdon, Queen Elizabeth's Chamberlain of the Household, had his mansion here. His son, Sir George Carey, who upon the death of Sir Henry succeeded to the title of Lord Hunsdon and in the following year, 1597, became also Lord Chamberlain,[3] had his residence adjoining the south wall of the theatre. The gate to his mansion adjoined the south entrance to the theatre, and both opened out of the same passage-way.[4] Sir William More of Loseley owned a house on Playhouse Yard (then called Pipe-Office Yard), almost opposite the north entrance to the theatre. It was occupied by Lord Cobham,[5] who during a part of the first year of the theatre's history was Lord Chamberlain. Elizabeth Dowager Lady Russell resided near. Queen Elizabeth was frequently entertained in the neighborhood at noble marriages, great dinners, elaborate masques, &c., particularly at Lord Cobham's and Lord Hunsdon's; and at least once, possibly oftener, at a play in Blackfriars theatre.[6]

knight, on the north parte."—*Historical MSS. Com., op. cit.* (1879), 659.

[1] See article in connection with the three newly discovered Chancery documents involving Shakespeare as plaintiff in 1615 concerning his Blackfriars house, published *in extenso* by me in *The Standard* (daily), London, Wed., Oct. 18, 1905, p. 5, col. 1–3.

[2] *Cf.* also J. O. Halliwell-Phillips, *Outlines of the Life of Shakespeare* (9th ed. 1890), II, 246.

[3] Henry Carey, Lord Hunsdon, died July 22, 1596. His son George was appointed to the office of Lord Chamberlain Sunday, April 17, 1597. William Brooke, Lord Cobham, was Lord Chamberlain in the interval until his death, *i. e.*, from Sunday, August 8, 1596, to March 5, 1597.—See original entries of the Clerk in *Registers of the Privy Council*, preserved at Whitehall, London, *ad loc.*, or the same in *Acts of the Privy Council* (ed. J. R. Dasent), XXV, 4; XXVII, 50; XXVI, 98. *Cf.* also Halliwell-Phillips, *op. cit.*, I, 366*c*, and F. G. Fleay, *A Chronicle History of the London Stage* (1890), 134.

[4] *Deed to James Burbage, 1596*, in Halliwell-Phillips, *op. cit.*, I, 300*a*.

[5] *Ibid.*, I, 301*a*.

[6] *Cf. infra*, 95–97.

According to the Petition of the inhabitants of Blackfriars precincts in 1596,[1] there were others of the nobility and gentry in the neighborhood. The deed of a dwelling-house and grounds by Henry Walker to William Shakespeare in 1613[2] shows that formerly John Fortescue[3] had lived in that house, and at present Henry, Earl of Northumberland, occupied adjoining property. The prominent families of the Blackwells and the Bacons also resided near. The Chancery documents concerning Shakespeare and others in 1615, which I recently discovered in the Public Record Office,[4] give the names of others,—particularly Sir Thomas Bendish, Robert Dormer, Edward Newport, and additional members of the Blackwell and Bacon families. In various other unpublished documents in the Public Record Office I have met with the names of additional more or less prominent members of the nobility and gentry of the time in connection with property transactions in the Blackfriars. Documents published by Stowe[5] give some of the earliest names, in Henry VIII, as Sir John Portenary, Lord Cobham, Lord Zanche, Sir Thomas Cheney, Sir William Kingston, Sir Francis Brian. But certain unpublished documents which I have come upon in the Guildhall archives[6] indicate that the most of the Blackfriars inhabitants were not of the wealthy class. The same impression is given by several allusions to working people in documents published by Stowe,[7] as also by the mention of the feather-makers, Puritans, &c., of Blackfriars in contemporary dramas. From all evidences I conclude that the aristocratic part was on the higher slope of the hill, limited practically to the district occupied formerly by

[1] *Cf. supra*, 17[8].

[2] See deed and mortgage in Halliwell-Phillips, *op. cit.*, II, 31–36.

[3] Sir John?

[4] See the three documents *in extenso* with introductory article published by me in *The Standard* (daily), London, Oct. 18, 1905, p. 5; type-facsimiles of them with separate article in *University of Nebraska Studies*, October, 1905, 347–56; type-facsimiles with brief article in *Englische Studien* (ed. Johannes Hoops, Heidelberg) 1905–6, XXXVI, 56–63; photo-engraved reduced facsimiles of two of the documents (Bill and Answer) in *New Shakespeariana*, April, 1906, frontispieces; originals in Public Record Office, London, under *Chancery Proceedings, Bills and Answers, James I*, Bundle B 11, No. 9; and *Court of Chancery, Decrees and Orders*, vol. 1614"A," p. 1074.

[5] John Stowe, *op. cit.* (ed. 1633), 377*b*.

[6] *E. g., Letter Book Z*, fol. 23–28.

[7] John Stowe, *op. cit.* (ed. 1633), 375*ff*.

the cloisters, the pretentious Priory buildings, and the spacious old conventual church.

In the midst of this aristocratic district stood the Blackfriars theatre. It was a much more pretentious structure than usually supposed. The fact that James Burbage in 1596 paid 600 *l.* for the house,—about 4800 *l.* in present values on a conservative basis,[1]—indicates it was of considerable size. Compare this price with the value of the best known property in the district, Shakespeare's house. This was a dwelling of at least two stories, with several rooms, and cost only 140 *l.* at the time of its purchase by the poet in 1613. The natural inference follows that the Priory House purchased by Burbage and converted by him into the Blackfriars theatre must have been four to five times as large. This inference is borne out by the available *data* of certain published and unpublished[2] documents. At the time of purchase by Burbage the building contained several flats and lodgings. When remodeled into the theatre, it contained one great hall with galleries and a stage, and several smaller rooms adjacent and above for specific uses.

A further notion of the pretentiousness of the Blackfriars structure is given by a comparison of total costs of contemporary theatres.

"The Theatre," built by James Burbage in 1576, approximated 600 *l.;* and when in 1598–99[3] it was torn down, Gyles Allen, lessor

[1] It is impossible to state relative values exactly. A comparison of prices then and now shows building materials about one-tenth to one-fifteenth as dear as today, with labor and most necessities of life approximately of the same relative cheapness. As to real estate, values of not only this same property (now owned by *The Times*) but of property throughout London have so increased that a comparison on that basis would make the price paid by Burbage seem fabulous. The estimate I have here allowed of one-eighth is probably too conservative, but even on that basis shows the property highly valuable.

On comparative values, see further Sidney Lee, *Life of Shakespeare* (4th ed. 1899) 187[1], where also one-eighth is taken as the basis. But J. O. Halliwell-Phillips, *op. cit.*, I, 21, says, "In balancing Shakespearean and present currencies, the former may be roughly estimated from a twelfth to a twentieth of the latter in money, and from a twentieth to a thirtieth in landed or house property."

[2] See *infra*, 36[4], 39[1].

[3] The process of demolition began Dec. 28, 1598, and seems to have been completed in January, 1599. See extracts from suits at law in Halliwell-Phillips, *op. cit.*, I, 360–61.

of the land on which it had stood, wishing in a suit at law to secure damages, placed upon it the high value of 700 *l.*[1]

The cost of the Globe, constructed in 1599 partly from the old materials of the torn-down "Theatre," cannot have reached near 600 *l.*[2]

The Fortune, erected the next year (1600) on the general plan of the Globe, was contracted for, to be built wholly out of new materials, at 440 *l.*[3] But the building when completed exceeded the contract-price, amounting to 520 *l.*[4] The lease of the grounds cost 240 *l.* Hence the total cost of the Fortune theatre and grounds was 760 *l.*[5]

[1] See *data* from suits in Halliwell-Phillips, *op. cit.*, I, 371*c*.

[2] *Cf. infra*, 29[4].

[3] See contract of Henslowe and Alleyn, owners, with Peter Street, carpenter. Original in Dulwich College Library, in the suburbs of London. Printed in E. Malone, *Shakespeare Variorum* (ed. Boswell, 1821), III, 338–43; J. O. Halliwell-Phillips, *op. cit.*, I, 304–6; G. P. Baker, *The Development of Shakespeare as a Dramatist* (1907), 315–20 (from Malone, *u. s.*).

[4] Peter Street was the builder of both the Globe (*u. s.*) and the Fortune. His contract of 440 *l.* to build the Fortune after the general plan of the Globe is based upon his experience in erecting the Globe. That amount rather than the 520 *l.*, then, gives his approximate estimate of the cost of the Globe if it had been built not of old, but wholly of new material. Upon this basis the Globe, built partly of materials from "The Theatre," cannot have cost so much as 440 *l.* in actual cash outlay in 1599.

[5] *Data* from Edward Alleyn's memorandum of "What the Fortune cost me Novemb., 1599," printed from the original MS. at Dulwich College in *The Alleyn Papers* (ed. J. P. Collier, *Shakes. Soc. Pub.* 1843), xiv. Also in J. P. Collier, *History of English Dramatic Poetry* (1879[2]), III, 119. [But there is an error by some one. The contract for the Fortune (*u. s.*, 29[3]) is dated "the eighte daie of Januarye, 1599-[1600], and in the twoe and fortyth yeare of the reigne of our sovereigne ladie Elizabeth." At this period the calendar year ended March 24. Has Alleyn in his Pocket-book note above, "Novemb., 1599," forgot to change the year after passing March 24? It should of course be "1600." For similar errors, see Henslowe's *Diary* (ed. Collier, *S. S. Pub.*, 1845), 29, 47, 99, 102, *et passim*].

Sometimes the cost of the Fortune is stated as 880 *l.* But that includes private buildings that Alleyn placed on the same grounds. Sometimes the amount is given as 1320 *l.* But that includes not only these private buildings, but additional houses and leases in Golding Lane purchased by Alleyn, the expense of all being itemized and summed up in the same account (*u. s.*). Collier (*Memoirs of Edward Alleyn, S. S. Pub.* 1841, 59), upon reconsideration after the first edition of his *History* (1831), decides that the 520 *l.* was only Alleyn's half of the expense. But his assumption that Henslowe paid an equal amount is gratuitous and is supported by no document. On the contrary all the known *data* accord with 760 *l.* as the total cost of the Fortune theatre and lease of grounds.

The cost of the Curtain and "the little Rose"[1] is unknown, but cannot have equaled that of the Fortune or the Globe.

The outlay for the Bear Garden and especially for the Swan can be approximated through our knowledge of the Hope. In 1613, the Bear Garden was torn down and the Hope built in its place on the model of the Swan in every detail.[2] The old materials of the Bear Garden and of another old house were to be used in building the Hope,[3] and an adjoining two-story "bull house or stable" large enough to accommodate six bulls and three horses. Besides this old lumber, the cost in cash for labor and new materials was agreed upon as 360 *l.* It is liberal in any case to estimate the materials at half the total cost of the finished structure. But in this case the 360 *l.* includes part of the materials,—all the new. It includes also the labor on the "bull house or stable." It would on this basis seem generous to estimate the cost of the Hope theatre exclusive of grounds at 500 *l.* In no respect does it seem to have equaled the Fortune building, which cost 520 *l.*

The Bear Garden, then, at the time of pulling down, and most likely at first cost, was worth less than the new building of the Hope that displaced it.

As to the Swan, it is fair to conclude that that theatre was not more pretentious in form nor worth than the Hope, for which it served as model. But according to a contemporary Dutch priest of St. Mary's, Utrecht, Johannes De Witt, who stands absolutely alone in his testimony, the Swan was a magnificent theatre, "constructum ex coaceruato lapide pyrritide,"[4] and large enough to

[1] The Rose may have been worth more than half as much as the Blackfriars. The rental value placed upon the Rose in 1603 by a prospective tenant was 20 *l.*, just half the yearly rent of the Blackfriars. But Henslowe thought his "little Rose" worth more than 20 *l.*, and declared he would pull it down rather than accept that amount.—*Cf.* Henslowe's *Diary* (ed. Collier, *S. S. Pub.*, 1845), 235–36.

[2] See contract by Henslowe and Meade with Gilbert Katherens, carpenter, 29 August, 1613, for building the Hope. Printed in E. Malone, *Shakespeare Variorum* (ed. Boswell, 1821), III, 343–47; reprinted therefrom in G. P. Baker, *The Development of Shakespeare as a Dramatist* (1907), 320–25.

[3] The Hope was used for bull-baiting and bear-baiting two days in the week, and for plays four days. *Cf.* contract *u. s.*; also *cf. infra*, 33[3].

[4] Translated as "flint," "flint stone," "concrete of flint stone," &c. But the translation or the meaning makes little difference, since the

accommodate three thousand spectators.[1] Also the painted pillars were to him so good an imitation of marble as to deceive the sharpest eye.[2]

All this would argue great cost in building. But De Witt's statements are unfortunate in not being wholly true. The Swan was built of wood,[3] and was later (1613) duplicated in every particular by the Hope, the contract for which has come down to us.[4] The inner walls were plastered. The outer walls too were plastered or roughly stuccoed or "cemented" but not in such manner as to leave the heavy cross-timbers of the framework artistically exposed,[5] as has been surmised.[6] The plaster or cement

statement is not true. The Swan was built of wood. See *infra*, 31[3]–31[4].

[1] *Cf. infra*, 50[1].

[2] For De Witt's full description and a very free-hand sketch of the Swan therefrom by Van Buchell, generously reproduced in most of the later works on the English drama and stage, see Dr. K. Th. Gaedertz, *Zur Kenntnis der Altenglischen Bühne* (1888), where De Witt's Latin document and the Swan sketch, both done from pleasing recollection, were first published. Original MS. and drawing in the Utrecht library, where Dr. Gaedertz discovered them.

[3] Paul Hentzner, a German sojourner in England in 1598, not more than two years after De Witt's visit, declares in his exhaustively minute and generally veritable observations on London that the [public] theatres of that period were "all built of wood." The contract for the Hope, modeled on the Swan, specified wood for the entire frame-work, and indicates plaster for finishing. *Cf. infra*, 32[1].

[4] See contract, *u. s.*, 30[2]. So nearly is the Hope to be like the Swan that Henslowe and Meade have not felt it necessary to make specifications in detail, even of the size. Gilbert Katherens, the carpenter, is to find out all such details from the Swan, —"And to builde the same of suche large compasse, forme, wideness, and height, as the plaie house called the Swan in the libertie of Paris Garden in the saide parishe of St. Saviours now is." Furthermore, "And the saide playe house or game place to be made in all thinges and in suche forme and fashion as the said playhouse called the Swan."

[5] A style of construction still preserved in occasional old buildings of London, as inns,—*e. g.*, in Holborn street,—in Stratford-on-Avon, Shrewsbury, Chester, and most other old towns of England. Also seen in especially good examples in ancient *bauer* or peasant houses and inns of southern Germany. A style imitated on more conventional lines quite widely this present year in American residence buildings in outward effect, but not in real construction. Although numerous buildings contemporary with the early theatre show in the engravings this style of architecture, none of the many pictures of early theatres do. For a convenient collection showing both, see Sir Walter Besant, *London in the Time of the Tudors* (1904), *passim*, or Halliwell-Phillips, *op. cit., passim.* For later views, *cf.* Philip Norman, *London Vanished and Vanishing* (1905. Illus. with 75 colored plates from paintings by the author).

[6] So at least I understand Prof. G. P. Baker, *op. cit.*, 73, in the expression "a cross-timbered construction."

covered the entire exterior,[1] and was probably marked off so as to give the appearance of stone blocks,[2] or otherwise ornamented. Also the pillars "uppon and over the stage" of the Hope, like those of the Swan, were simply "turned cullumes [columns],"[3] a very plain adornment at best, while the posts supporting the balconies were made of square dimension stuff measuring from ten by ten in the lower story to six by six in the upper. And

[1] The Fortune was plastered thus outside, as shown by the contract for its construction (*u. s.*, 29[3]) thus: "And alsoe all the saide frame and the [outside] stearcases thereof to be sufficyently enclosed without with lathe, lyme, and haire." The Globe as the specified model of the Fortune must then have been built in the same manner. The general specifications in the Hope contract (*u. s.*, 31[4]) calling for the use of "lyme lears [= hears], sand, brickes, tyles, laths, nayles," &c., the whole building "to be made in suche forme and fashion as the said playhouse called the Swan," indicate the same style of plaster exterior for both as for the Fortune and Globe. Corroborative of this evidence is the engraving of the Hope ("Bear Garden") in R. Wilkinson, *Londina Illustrata* (1819), I, pt. ii (no pag.), which shows a plaster exterior marked off into large stone-shaped blocks. Although Visscher's view of 1616 was used as a basis for this engraving, it is fair to presume the engraver had more tangible evidence than mere imagination upon which to represent such an exterior. Particularly so since it is not contradictory but corroborative of the other evidences, and is itself corroborated by common custom of the times represented.

From the amount of lime, sand, lath, lath-nails, &c. used by Henslowe "a bowte my play howsse" (probably the Rose) in 1592, this theatre also had a similar exterior. (See items in Henslowe's *Diary*, ed. Collier, *S. S. Pub.*, 1845, 10–15.)

In all these known cases of the Fortune (and Globe), the Hope (and Swan), as also in case of the addition to the Bear Garden in 1606 (*cf.* contract in *Memoirs of Edward Alleyn*, ed. Collier, *S. S. Pub.*, 1841, 78–81), the heavy-timbered "frame" is mentioned and emphasized as the main thing in the structure. The plastering over heavy laths or "slates" was of course regarded as part of the "finishing."

There seems little room for doubt that the same sort of heavy-timbered "frame" and plaster exterior characterized the Globe, the Fortune, the Bear Garden, the Swan, the Hope, and the Rose, and probably all other public theatres prior to the building of the new Globe and Fortune. (*Cf. infra*, 34[7].)

There was good reason why all the Elizabethan and early Jacobean public theatres should avail themselves of this same general plan of unpretentious and comparatively inexpensive efficiency. In this they were using the mode of building that was most in vogue for common houses, inns, and other structures not intended for the centuries,—a mode, so far as the plaster exterior is concerned, still used widely in southern Europe and parts of America, though not always for cheapness. The theatre was more or less an uncertain business enterprise, usually located on temporarily leased grounds, and did not warrant the anticipations of the future in either the expense or permanence that the use of brick or stone,—much less of flint stone,—would carry with it.

[2] See the Wilkinson engraving of the Hope (Bear Garden), *u. s.*, 32[1].

[3] *Cf.* contract for Hope, *u. s.*, 30[3].

neither the Swan nor the Hope could on an architect's estimate accommodate more than one-third the number De Witt guessed.[1] The removable stage of each rested on "tressels"[2] and could be taken up for bull-baiting or bear-baiting, and put down again for play-acting,[3]—an impermanency and practice that further suggests less of fixed excellence in structure and adornment than De Witt gave compliment to.[4]

There is no evidence of a pretentiousness of either the Swan or the Hope, built and used thus alike, that warrants a more generous valuation than the liberal 500 *l.* as already calculated, or a larger estimate of their capacity than that of the Fortune or the Globe. Rather do these estimates of value and size seem too large than too small.

In the same year the Hope was built, the original Globe was

[1] On comparative capacities, see *infra*, 50[1].

[2] *Cf.* Hope contract, *u. s.*, 30[2]. The De Witt-Van Buchell sketch of the Swan, which is merely suggestive,—in the main rightly but sometimes wrongly suggestive,—and in no detail exact nor intended to be exact, shows a temporary proscenium;—which however most probably extended much farther back than there shown, with the posts also moved far rearwards, leaving the "heavens" unsupported and projecting forward over the temporary stage, as specified in the Hope contract.

[3] "The Hope on the Banks side in Southwarke, commonly called the Beare Garden, A Play house for Stage Playes on Mundayes, Wedensdayes, Fridayes and Saterdayes, And for the Baiting of the Beares On Tuesdayes and Thursdayes, the Stage being made to take vp and downe when they please."—*MS. notes* in a copy of Stowe's *Annales or Chronicle* (continued by E. Howes), 1631, in the Phillips collection, Thirlestone House, Cheltenham; reported by Dr. F. J. Furnivall, "The End of Shakspere's Playhouses," in *The Academy* (1882), XXII, 314–15.

[4] When one considers De Witt's description and sketch of the Swan, one is divided between gratitude for certain *data* and the suggestive illumination of our knowledge on the one hand, and admiration on the other for the exhilarating quality of dramatic ale that made the distinguished Dutch scholar and priest see the rather plain, moderate-sized plastered wooden bear-baiting and bull-baiting playhouse with generous vision, even in pleasing retrospect.

Ben Jonson in closing *The Induction* to his *Bartholomew Fair*, under date 30 Oct., 1614, the first play ever presented at the Hope, damned that bull-baiting theatre as not merely unaesthetic, but as "being as durty as Smithfield, and as ſtinking euery whit." [The slush and filth of the cattle-market of the Bartholomew fair, held every August at Smithfield, was proverbial.] With the breath of this judgment blown suggestively across from the Hope to its model in structure and use, the Swan, it would seem that De Witt at a distance with his Latin prose was more poet than Jonson present with his English verse.

burned down[1] and the new Globe erected[2] by the shareholders[3] in its place at a cost of 1400 *l.*[4] Although begun in 1613 it was not completed until the spring of 1614,[5] nearly a year after the fire.[6] The reason for the extraordinary expense and the longer time required for construction was that the building was erected much more substantially[7] and fitted out in a manner superior to all

[1]Burned 29 June, 1613. For details, see a letter from John Chamberlain, 8 July, 1613, in Malone, *op. cit.*, 69; Sir Henry Wotton, *Reliquae Wottoniae* (1685), 425; John Stowe (continued by E. Howes), *Annales or a General Chronicle* (1631), 1004; "A Sonnet on the pitiful Burning of the Globe Playhouse in London," in J. P. Collier, *History of English Dramatic Poetry and the Stage* (1831), I, 387; printed also from another MS. in Halliwell-Phillips, *op. cit.*, I, 310–11. The least known but one of the most nearly contemporary of these accounts is a letter from Rev. Thomas Lorkin to Sir Thomas Puckering the next day after the fire, 30 June, 1613, in [Thomas Birch], *The Court and Times of James I* (1848), I, 253.

[2]For the statement in an early record, but on an unknown basis, that the Globe was "now built vp again in the yeare 1613 at the great charge of King Iames, and many Noble men and others," see *The Academy, loc. cit.*

[3]For a list of the shareholders and their shares at this time,—and from the beginning of the Globe,—see the long and valuable documents on Shakespeare, and the Globe and Blackfriars theatres, which I discovered some time ago and shall as soon as possible make known in a separate publication.

[4]See *Answer* of John Shanks in the *Globe-Blackfriars Share-papers of 1635*, in Halliwell-Phillips, *op. cit.*, I, 316*a*.

[5]". . . And the next spring [1614] it was builded in farre fairer maner then before."—John Stowe (continued by E. Howes), *Annales or a General Chronicle* (1631), 1004. The MS. notes in the copy of this edition at Thirlestone House (*u. s.*, 33[3]) declare that the Globe was burnt down in 1612 and rebuilt in 1613. But those notes are inaccurate in dates and *data*, and can be accepted only when confirmatory of other evidence.

[6]It had but recently been opened when Chamberlain wrote Mrs. Carleton (*u. i.*, 35[1]), just a year and a day after the fire.

[7]The new Globe required nearly two to four times as long in construction as any former public theatre,—the Fortune contract (*u. s.*, 29[3]) calling for six and one-half months and the Hope three months. It cost nearly three times as much as any of them. These items indicate a better sort of material or better workmanship or both.

The Fortune theatre, the sharp rival of the Globe, was, after the 1621 fire, rebuilt with a brick veneer (*cf. The Academy, u. s.*, "And built againe with brick worke on the outside in y[e] yeare 1622"), possibly in continuation of the long emulation.

An official return, 1634 (W. Rendle, *New Shak. Soc. Pub.*, 1878, App. I, xvii), declares "The Globe playhouse nere Maide lane built by the Company of Players with timber about 20 yeares past uppon an old foundacion." This seems to preclude any notion of brick-work in the Globe above the foundation. But Wilkinson, who published, 1819 (*op. cit.*), the famous view of the plastered brick-veneered façade of the second Fortune (Shepherd *del.*, 1811, Wise *sculp.*), then still standing, engraved also in the same work, from Visscher, a view of the new Globe, showing brick-work in the key-stone arches over the win-

former public theatres.[1] The managers seem to have taken somewhat into account the demands of the better class of society that in late Elizabeth had abandoned the public theatres and followed after royalty in the enjoyment of superior accommodations and aristocratic exclusiveness at the Blackfriars.[2]

The Blackfriars Priory House cost Burbage at purchase 600 *l.* The extensive remodeling[3] necessary to convert the building into a theatre cannot, upon conservative estimates, have cost less than 200 *l.*, and most likely exceeded that amount.

The completed Blackfriars, then, had in 1597 a cash value of at least 800 *l.*

Upon all known evidences, some of which have been adduced in this comparative view of the theatres, the Blackfriars, then, at a value of 800 *l.*, was the most expensive theatre building ever established in London prior to the new Globe in 1614.

Still a further comparison is serviceable.

Since the publication of Wright's *Historia Histrionica,*[4] all private theatres have been generally classed together under the word "small," giving rise to absurdly false notions. The Blackfriars was large enough for the Burbage-Shakespeare company to take it for their own use after the termination of the Children of the Queen's Revels there in 1608.[5] Here they were able to assemble such audiences as to enable the company to get more by 1000 *l.* for their Blackfriars performances in a single winter than they were used to get at the Globe.[6] This was due mainly of course

dows, like those of the upper windows of the Fortune façade.

An original drawing of the Globe in the Crace collection (Brit. Mus., Pennant's *London*) the antiquity of which is forged, likewise shows the arches of brick. On the whole it seems questionable but not unlikely that the timber framework was brick-veneered and plastered over, after the old and still present custom, as in the case of the Fortune.

[1] "I have not seen your sister Williams since I came to town, though I have been there twice. The first time she was at a neighbor's house at cards, and the next she was gone to the New Globe, to a play. Indeed, I hear much speech of this new playhouse, which is said to be the fairest that ever was in England."—John Chamberlain, Esq., to Mrs. Alice Carleton, 30 June, 1614, in [Thomas Birch], *The Court and Times of James I* (1848), I, 329. *Cf.* also *supra,* 34[5].

[2] *Cf. infra,* 51, 95–97, 105ff., 126–29, 148–62, 173ff.

[3] *Cf. infra,* 39–43.

[4] James Wright, *infra,* 36[2], 43[6].

[5] See under "Children of the Queen's Revels at Blackfriars" in forthcoming work, vol. I.

[6] "This replyant [Kirkham] sayth, and the same will averr and proue to this honorable Courte, that duringe such time as the said defendants Hemings and Burbidge and

not to greater size of auditorium, but to superior accommodations and higher prices in entertaining a more select and exclusive set of patrons. The Blackfriars as we shall see was not so large as the Globe, though of greater size than seems generally believed. It was the standard for Whitefriars (*ca.* 1604),[1] and the model in form and size for the Cockpit (*ca.* —?; rebuilt as Phoenix, 1617), and for Salisbury Court theatre (1629).[2]

The above comparisons give us general conceptions. Materials at hand enable us to determine with some definiteness the size of the Blackfriars building and essential features of its exterior at the date of purchase, as also the interior arrangement of rooms, the extent of alterations made by the Burbages, the exact square dimensions of the "Great Hall" used as the theatrical auditorium, the location of the stage, and the general features of arrangement of both auditorium and stage. The evidences are in the Deed to Burbage,[3] the numerous suits at law by Henry Evans, Edward Kirkham, and their associates against each other,[4] Clifton's complaint in the Court of Star Chamber against Evans *et al.*,[5] documents concerning Salisbury Court theatre,[6] and contemporary plays.

theire Companye contynewed playes and Interludes in the said great Hall in the ffryers, that they gott & as yet dothe, more in one Winter in the said great Hall by a thousand powndes then they were vsed to gett in the Banckside."—Kirkham's *Replication* in *Kirkham vs. Evans et al.*, Court of Chancery, 1612, Public Record Office. Printed from the transcript of James Greenstreet, the discoverer, in F. G. Fleay, *A Chronicle History of the London Stage* (1890), 248.

[1] See "Children of the King's Revels at Whitefriars," in forthcoming work, vol. I.

[2] "They [Blackfriars, Cockpit, and Salisbury Court] were all three built almost exactly alike for form and bigness."—James Wright, *Historia Histrionica* (1699), in Hazlitt's Dodsley, *Old Plays* (1876), XV, 408. [But Wright is not quite exact here. See *infra*, 39[8]].

[3] Printed in Halliwell-Phillips, *op. cit.*, I, 299–301.

[4] These suits take rank among the chief records of the Elizabethan-Jacobean stage. Two of them, containing eleven documents, were discovered by the late Mr. James Greenstreet, and printed *in extenso* in F. G. Fleay, *op. cit.*, 210–51. [Later references, "G-F."]

Twelve additional suits—containing bills, pleas, answers, replications, depositions, bonds, and articles of agreement—belong among the treasures of my own researches, and will appear *in extenso* in my forthcoming work, vol. III. Occasional quotations are made from them in the present work.

[5] Greenstreet's transcript in Fleay, *op. cit.*, 127–32. [Referred to hereafter as "G.-F."]

[6] Published by Peter Cunningham in *The Shakespeare Society's Papers* (1849), IV, 91–108.

The Blackfriars building was a stone[1] structure erected in two sections. The north section adjoining the Pipe Office,—a government repository where great drainpipe-like rolls of state parchments were kept,—was three stories high, with garret above these and cellars or vaults beneath.[2] The tiled roof was steep,[3] with gable-end facing north on Pipe-Office Yard[4] (now Playhouse Yard), and dormer windows in the third story.[5] In the west half of this section there were two rooms on the second floor[6] and two on the first immediately below.[7] These four rooms were balanced on the east by an entry hall and a great winding stone stair-way.[8] The main entrance of the building was out of Pipe-Office Yard and led by the great winding stair and hall to all the rooms of this north section, as also on the second floor by a passage through the dividing stone wall to that part of the south section described as the "seaven greate upper romes . . . sometyme beinge one greate and entire rome."[9]

The south section is of chief literary-historical interest because of its having been made into the "Great Hall" of Blackfriars theatre. At the date of purchase this section was two stories high[10] with "cellar" or basement rooms besides.[11] The flat roof was covered with lead,[12] up to which from the "seaven greate upper romes" ran a stone stair-way.[13] The lower floor of this section,

[1] *Cf. Deed to Burbage* in Halliwell-Phillips, *op. cit.*, I, 299–300, *passim.*

[2] *Ibid.* The parts describing the north section are 299, 21–35; 300, 17–36, 38–53.

[3] See *Deed, u. s.*, description of the two rooms in third story occupied by Edward Merry (300, 21–31) and of the garret above (300, 31–36).

[4] *Idem,* 299, 23, 32; 300, 41–46.

[5] The location of the rooms occupied by Edward Merry (*id.*, 300, 21–28) would seem to require this sort of structure so common to the times.

[6] These were occupied by Charles Bradshaw. They had an entrance from the main stairway, and also an outside stairway.—*Idem,* 300, 17–21, 50–53.

[7] These were occupied by Peter Johnson. They had a separate entrance.—*Idem,* 300, 38–43.

[8] *Idem,* 299, 21–23, 31–32; 300, 20–21, 24–25.

[9] *Idem,* 299, 21–23; 300, 20–21, 26–28, 28–31, 34–36.

[10] *Idem,* 299, 14–21; 299, 35—300, 17; 300, 36–38.

[11] *Idem,* 300, 11–17.

[12] *Idem,* 299, 16–19. Steep roofs were covered with tile, and flat roofs with lead. During a recent delightful itinerary of Hampton Court Palace by members and friends of the London Shakespeare League conducted by Mr. Ernest Law, I was impressed with the appearance of a similar flat lead-covered roof of a contemporary part of the structure that we crossed in passing from "the Great Hall" to another portion of that Shakespeare-haunted palace.

[13] *Idem,* 299, 17–18.

immediately under the "seaven greate upper romes," was divided into lodgings and apartments.[1] The rooms occupied by Thomas Bruskett, called "Midle Romes or Midle Stories,"[2] comprised an area 52 feet by 37 feet and extended southward to the mansion of Sir George Carey.[3] Two other rooms in the north end of this section were occupied by Peter Johnson, and were connected with the two rooms he had on the same floor in the north section.[4]

The Deed to Burbage locates Bruskett's apartments as being under the west part of the "seaven greate upper romes,"[5] but omits to mention what was under the east part. But from the size of the auditorium made by Burbage,[6] it is likely there was at date of purchase a passageway 9 feet wide in the undescribed location.

The entrance to the lower floor of this section was on the south and adjoined the gate to Sir George Carey's mansion, both opening out of the same passageway or lane.[7]

As this south section alone was converted into the theatre-auditorium, its size is of interest. The supposition is general that both auditorium and stage were small. The comparative view already given and the definite data now at hand show this is not quite a correct view.

The dimensions of 52 x 37 feet, specifically stated in the deed as the measure of only those apartments of the lower floor occupied by Thomas Bruskett,[8] have been assumed to be the size of the entire theatre.[9] But in fact the auditorium alone was more than one and one-half and the entire building possibly more than two and one-half times that size.

[1] Part of these were occupied by Thomas Bruskett (*idem*, 299, 35—300, 11), and the others by Peter Johnson (*idem*, 300, 36–38).

[2] The designation "middle rooms" or "middle story" was regularly used to mean the second one of three stories. [For convenient example, see contract for Hope theatre, *u. s.*, 30[2], where the second of the three galleries is called "the midall storie."] In the present case these rooms are called "middle" because the basement rooms, on account of the rapid southward slope of the grounds, constitute the first story. Hence they are described in the deed as "adjoining" the gardens. The two rooms at the north end occupied by Johnson on the same floor with Bruskett are called "lower rooms," doubtless because there the basement rooms are not mainly above ground.

[3] *Deed, u. s.*, 299, 38—300, 11.

[4] *Idem*, 300, 36–41.

[5] "lyeing and beinge directlye under parte of those of the sayd seaven upper romes which lye westwardes." —*Idem*, 300, 1–3.

[6] *Cf. infra*, 39[1].

[7] *Deed, u. s.*, 300, 6–11.

[8] *Cf. supra*, 38[1].

[9] See for example, C. I. Elton, *Shakespeare's Family and Friends* (1904), 458.

In certain documents which I have recently found, the exact size of the "Great Hall" or auditorium is stated as 66 x 46 feet, with the length running north and south.[1] It is made clear that this is the full size of the south section. The dimensions of the north section can only be approximated from this, in connection with items already referred to in the deed, and others yet to be mentioned from other documents. The width was certainly 46 feet, while no possible conception of the arrangement of rooms from first floor to garret would seem to allow an approximation of less than 40 feet north and south. This would make the entire building 46 feet wide and something over 100 feet long.

The auditorium section of Blackfriars theatre, therefore, was about half the size of the Globe or the Fortune.[2] The entire building was also at least four feet wider than Salisbury Court theatre, but may or may not have exceeded it in length.[3]

The alterations by the Burbages in converting the Blackfriars building into a theatre were extensive and cost much time and money.[4] The north section alone required but little change to

[1] The "Great Hall" of the Blackfriars is described as "existens pars *et* parcella illorum domorum *et* aedificacionum ibidem quae fuerunt tunc nuper perquisitae *et* emptae de Willelmo Moore Milite per Jacobum Burbidge defunctum patrem praedicti Ricardi *et* per dictum Ricardum Burbidge continens per estimacionem in longitudine ab australe ad borealem partem eiusdem sexaginta *et* sex pedes assissae sit plus siue minus *et* in latitudine ab occidentale ad orientalem partem eiusdem quadraginta *et* sex pedes assissae sit plus siue minus." [Italics supplied by me in place of the original characters of abbreviation]. —See documents *in extenso* in vol. III of forthcoming work.

[2] The Fortune, 80 x 80 = 6400 sqft. (See *Contract for Fortune*, in Halliwell-Phillips, *op. cit.*, I, 305*a*.) The Blackfriars "Great Hall," 66 x 46 = 3036 sqft. The Globe, though the model for the Fortune in structural details, was not square but octagonal.

[3] The grounds purchased for the erection of Salisbury Court theatre (1629) were 42 x 140 feet. It is not likely that the theatre occupied the full length of the grounds, but its width was certainly narrow enough at 42 feet.—See *Indenture, 15 July, 1629*, Brit. Mus., *Add. ch.* 9290. See this and other documents on Salisbury Court theatre published by Peter Cunningham in *The Shakespeare Society's Papers* (1849), IV, 91–92, 102.

From the preceding *data*, the statement of James Wright, *Historia Histrionica* (1699), in Hazlitt's Dodsley, *Old Plays* (1876), XV, 408 (*u. s.*, 36[2]) that Blackfriars, the Cockpit, and Salisbury Court "were all three built almost alike for form and bigness," is not quite exact—nor is it intended to be.

No farther *data* are known as to dimensions of the Cockpit.

[4] "Now for the Blackfriars, that is our inheritance; our father purchased it at extreame rates, and made it into a playhouse with great charge and troble," say Cuthbert, Winifred, and young William Bur-

make it adaptable to the new uses. The lower room just west of the main entrance and the room just above it were still kept for residence purposes, and were reserved by Richard Burbage in making the later lease of the premises to Evans.[1] The other west lower room was converted into "the Scholehouse"[2] where the Children of the Chapel maintained at Blackfriars as actors were taught various subjects, including those of the Grammar school.[3] The room immediately above was later made into a dining-room or commons for the boy-actors by Henry Evans, the lessee, at his own expense.[4]

The south section underwent a thorough transformation. The two stories were converted into the auditorium called "the great Hall or Room,"[5] which was separated from "the Scholehouse" and dining-room above[6] by the stone wall[7] between the two sections of the building. The roof was changed, and rooms, probably of the usual dormer sort, were built above the Great Hall.[8]

bage in the *Globe-Blackfriars Share-Papers of 1635*. In Halliwell-Phillips, *op. cit.*, I, 317.

[1] See *supra*, 36[4].

[2] "A certen roome, called the Scholehouse, and a certen chamber over the same."—Evans's *Bill of Complaint* in Evans *vs.* Kirkham, G.-F., 213*c*. These same two rooms are mentioned over and over in the documents discovered by both Mr. Greenstreet and myself. In one of the latter, for example, "the schoolehowse" is definitely located as "schola anglice schoolehowse ad borealem finem Aulae *praedictae*."

[3] See Diary of the Duke of Stettin, *infra*, 106–7, 113–25.

[4] Evans speaks of the chamber over "the Scholehouse" as "made fitt by your oratour, at his owne proper costs and chardges, to dyne and supp in."—Evans's *Bill of Complaint* in Evans *vs.* Kirkham, G.-F., 214*b*.

[5] See documents in G.-F., 211*a*, 215*c*, 223*c*, 227*b*, 228*c*, 230*a*, 233*b*, 239*c*, &c. The same appears with equal frequency in my more recent discoveries referred to *supra*, 36[4].

[6] "wch said scholehouse and chamber over the same were seuered from the said great. hall."—Evans *vs.* Kirkham, G.-F., 214*b*.

[7] See Deed (*op. cit.*, 299*c*) describing the vault under the north entrance-hall with a great stone wall on the south side of it. The different height and method of roofing of each section indicates this wall extended from the vaults to the roof. Also, if it had not been for this stone wall in the way, the auditorium would doubtless have been made larger.

[8] The deed to Burbage (*u. s.*, 17[3]) minutely describes and locates every part of the building, except the space to the east of the rooms occupied on the first floor by Thomas Bruskett (cf. *supra*, 38[1], 38[8]). The stairs in the north section led up into the gabled garret. The stone stairway out of "the seaven greate upper romes" ran directly up to the leads of the flat roof of the south section. There were no rooms above the second story of this auditorium section then. But when the building was finally remodeled into a theatre and Evans leased it, there were. They are mentioned in the lawsuits numerous times in connection with the

These by their adaptation for the purpose must have served for the lodgings of the Children of the Chapel who, as shown later,[1] were boarded, lodged, and instructed at the theatre under the supervision of Henry Evans.[2] Evans and his wife had residence in "one or two rooms"[3] in the building,—doubtless the two on the third floor fronting Pipe Office Yard.

In the Great Hall, galleries[4] and lords' rooms[5] or private boxes with lock and key[6] were built around the sides. No published

lease; *e. g.*, "All that great Hall or Rome wth the roomes over the same."—Evans *vs.* Kirkham, G.-F., 211.

"Whereas Richard Burbage . . . hath leased and to farme letten vnto henrye Evans all that greate hall or Roome with the roomes ouer the same in the said indenture mencioned."—The 200 *l.* bond of Evans to Kirkham *et al.* in one of the documents which I recently discovered. *Cf. infra,* 92[2].

That the "roomes ouer the same" were of little use except in connection with the theatre is shown by the Plea of Burbage and Hemings in the suit of Kirkham *vs.* Painton, G.-F., 228*a*.

[1] *Infra,* 71, 73ff, 98ff, 105ff.

[2] If the new roof was given a pitch similar to that of the north section, there would have been a space at least 66 feet long and about 32 feet wide to divide into rooms. Allowing a hall of 6 feet, the remaining space would have made twelve rooms, each 11 x 13 feet. With two in each room, this would have accommodated twenty-four boys,—approximately the number required in most of the plays presented by the Children of the Chapel maintained at the Blackfriars. (*Cf. infra,* 75).

[3] " . . . one or two roomes wherein your subiect then inhabited."—Evans *vs.* Kirkham, G.-F., 211*c*.

[4] Galleries are mentioned in different documents that I have recently brought to light; *e. g.*, " . . . tocius illius magnae Aulae vel loci anglice Roome cum locis anglice roomes supra eadem . . . cum Theatro anglice a Stage porticibus anglice Galleryes *et* sedilibus de quantitate specificata in scedula ad inde annexata" &c.—*Cf. supra,* 36[4].

As Ben Jonson was writing for no other company than the Children of the Chapel during 1600–1601, the following can but refer to incidents at Blackfriars. Also every identifiable reference in *Satiromastix* to Jonson as a playwright is to his *Poetaster,* played first at Blackfriars *ca.* April, 1601.

Horace [Jonson] is made to swear, "You shall not sit *in a gallery* when your comedies and interludes have entered their actions and there make vile and bad faces at every line," &c.—Thomas Dekker, *Satiromastix* (ed. T. Hawkins, *Origin of the English Drama,* 1773), III, 193.

See further *infra,* 42.

[5] Horace [Jonson] is further sworn, "You must forswear to venture on the stage when your play is ended, and to exchange court'sies and complements with gallants in the lord's rooms, to make all the house rise up in arms and to cry,—That's Horace, that's he, that's he."—*Ibid.*

[6] "A little Pique happened betwixt the Duke of *Lenox* and the Lord Chamberlain about a Box at a new Play in the Black Fryars, of which the Duke had got the Key."—Letter from Rev. G. Garrard dated Jan. 25, 1635, in *The Earl of Strafforde's Letters and Dispatches* (1739), I, 511. Quoted also, but inexactly, in E. Malone, *op. cit.,* III,

document declares how many galleries there were. But one of the recent discoveries from which quotation has just been made uses the plural "porticib*us* anglice Galleryes,"[1] by which it is sure there were two or more, while *The Dutch Courtesan* by reference to "the middle region" makes it clear there were three.[2] Also the available space of two full stories[3] would have allowed an upper gallery, a middle gallery, and the usual lower gallery on the level with the stage.[4] In that part of the lower gallery that adjoined the stage must have been the chief *loges* or boxes or rooms for gentlemen and lords,[5]—to which reference is made when Horace [Jonson] in *Satiromastix* is accused of coming on the stage at the close of his play and exchanging courtesies and compliments with

74[9], and J. P. Collier, *op. cit.*, III, 145.

Although the date of this notice is 1635, there are reasons to believe that the structure and arrangement of the "rooms" was the same from the first.

[1] *Cf. supra*, 41[4].

[2] " . . . And now, my very fine Heliconian gallants, and you, my worshipful friends in the middle region."—Cockledemoy's *Epilogue* to Marston's *The Dutch Courtesan*, V, iii, 162–64. Played at Blackfriars *ca.* autumn, 1602.

Cf. also "middle rooms" and "middle stories," *supra*, 38[2].

[3] The Fortune contract (*u. s.*, 29[3]) calls for three stories, the first 12 feet, the second 11 feet, and the third 9 feet, a total of 32 feet. Blackfriars auditorium must have been of nearly or quite an equal height. This might well have been. Any one familiar with the nobler mediaeval monastic or conventual buildings is aware that their ceilings are generally very high. The upper story of Blackfriars seems to have been built and roofed by the friars as a single room for auditorial purposes, and certainly during Sir Thomas Cawarden's time was used as such, even for presentation of plays, and for rehearsals of interludes, masques, &c., in preparation for Court entertainment. A room 66 x 46 feet built and used for such purposes could hardly be less than 16 to 18 feet in height,—possibly rather more than less. If then the lower floor was but 12 to 14 feet high, the reconstructed "Great Hall" had a height of 28 to 32 feet. With 4 feet as the height of the stage-level gallery, this 28 to 32 feet of space allowed an average height of 8 to 9 feet for each gallery-story.

[4] This low gallery was characteristic of contemporary public theatres. (See for example the De Witt—Van Buchell sketch of the Swan.) It is still found in European theatres, especially in those of a date not quite modern. No better example could be cited than the old Stadttheater of Freiburg in Baden, not only in this particular of the lower gallery but in most other particulars; for it was remodeled as Blackfriars was from part of a mediaeval monastery. (*Cf. infra*, complete work, vol. I.)

This feature of a stage-level gallery around the whole room appears in the American theatre in only the most rudimentary form, extending no farther back from the stage than the two or three private boxes and the one or two open *loges* at their rear.

[5] *Cf. supra*, 41[5], 41[6], 42[2].

In the public theatres these "gentlemen's rooms" were at right and left of the stage with a passage between. In the Swan sketch they

gallants in the lords' rooms.[1] Dekker evidently thinking in another instance of the gallantly dressed audience on the Blackfriars stage as constituting the chief part of the "city" of elegance calls these lords' rooms "now but the Stages Suburbs."[2]

The stage was in the south end of the "Great Hall."[3]

It has been assumed since the days of Wright's *Historia Histrionica* (1699),[4] and widely disseminated on the authority of Malone[5] that the Blackfriars stage was small. But "small" and "large" are such merely relative terms that upon the basis of modern notions no private or public stage of Shakespeare's time could be regarded as "large." The best we can do is to take a comparative view of the stages of the time on their own basis.

The assumption that Blackfriars stage was small is based upon the primary assumption that all the private theatres—Blackfriars, Whitefriars, Paul's, Cockpit, Salisbury Court—were built alike and had stages alike. But in fact the only reference cited by Malone, Collier, and the rest on the size of Blackfriars stage is taken from a Paul's play.[6] Quite the reverse of the usual opinion, the truth seems to be that the stages of the public theatres had

are labeled *"orchestra"* (*i. e.*, in the Latin sense), and are mentioned in the Fortune contract, the Hope contract, and numerous plays as "gentlemen's rooms." See also *infra*, 44–45, 136–41.

But the physical nature of Blackfriars building and stage required a different arrangement. Our private boxes are the outgrowth.

[1] *Cf. supra*, 41[5].

[2] *Infra*, 140[2], 141–42.

[3] The stage could not have been placed in the way of the main entrance, which was at the north when the purchase was made by Burbage. No other entrance after the remodeling could have led to all the demised premises. The stage is further excluded from the north end as also from the sides of the hall by one of the recently discovered documents (*u. s.*, 36[4]) which mentions minor repairs in the entrance leading to all the premises, and in the east and west walls and the floor along the east *side* of the hall and under the east *end* of the stage. It speaks of the need of repair "in exteriori ostio ducente ad praedicta dimissa praemissa *et* . . . in paviamento per orientalem partem praedictae Aulae *et* in paviamento subter orientalem finem Cuiusdam Theatri anglice the Stage in Aula praedicta" &c.

[4] *Infra*, 43[6].

[5] *Infra*, 43[6].

[6] See *infra*, 130–31[1].

Malone (*op. cit.*, III, 61[5]), however, seems to base his conclusion on James Wright's statement in *Historia Histrionica* (*u. s.*, 36[2], 39[3]) concerning the similar size and form of Blackfriars, Cockpit, and Salisbury Court, coupled with two lines of the epilogue to Thomas Nabbes's *Tottenham Court*, acted at Salisbury Court 1638 (*cf.* title-page), which read as follows:

"When others' fill'd rooms with neglect disdain ye,
My little house with thanks shall entertain ye."

only general features alike, with important particular differences; while the stages of the three earliest contemporary private theatres, Blackfriars, Whitefriars, and Paul's, differed widely not only from these but also from each other.[1]

Again, it is assumed that in all three of these private theatres gallants sat on the stage, for which practice stools were provided. This assumption likewise is based upon the same primary assumption that the stages of all the private theatres were alike, and that the custom practiced on one was the custom also on the others. On the contrary, every reference to this practice quoted by Malone, Collier, and others, and every one that my own research reveals, in the period of late Elizabeth and early James I prior to the establishment of the Cockpit, is either from Blackfriars plays or in reference to that stage. The custom, as pointed out elsewhere, spread to later theatres.[2] But there is no evidence of it at either Paul's or Whitefriars. On the contrary, we are distinctly informed that the stage at Paul's was "so very little,"[3] that auditors were not allowed to sit there. As to Whitefriars there is no evidence on either side.

The fact that gallants sat on the Blackfriars stage without "wronging the general eye"[3] or hindering the players,[4] while at Paul's they could not[3] and at the Globe were not allowed to[5] and at other public theatres were not provided for[6] indicates that Blackfriars stage was, if not large, at least not small; and also that it was of a different construction from its earliest contemporaries.[7] Even more under these circumstances than if they were lacking is the presentation of elaborate dance and masque,[8] —that attractive spectacular feature of nearly every Blackfriars play from 1600 to the death of Elizabeth,[9]—further indicative of an adequate stage. After August 9, 1608,[10] even with gallants

[1] The stages of Cockpit and Salisbury Court, built later on the model of Blackfriars, are not here in question.

[2] For the full discussion on the origin and influence of the custom of sitting on the stage, see *infra*, 130–47.

[3] *Infra*, 131[1].

[4] *Infra*, 142.

[5] *Infra*, 134[4], 136.

[6] *Infra*, 137–41.

[7] *Cf. infra*, 46–49, and plats, 50–51.

[8] *Infra*, 118–19.

[9] *Infra*, 119–22.

[10] The Blackfriars was taken over by the Burbage company by six separate indentures of lease from Richard Burbage to his fellow shareholders,—Shakespeare among the number,—August 9, 1608, just following the termination of the Chil-

still frequenting their accustomed places, the Blackfriars stage was of sufficient proportions and equipment for the Burbage company,[1] the largest in London, to present on its boards the great Shakespearean plays with an excellence that is doubtless not disproportionately measured by the satisfaction of the audience and the consequent financial returns exceeding by a thousand pounds in a single winter the amount usually received at the Globe.[2]

The preceding comparative view gives a general notion of Blackfriars stage more nearly true than the "little" conception current in stage annals. While no published document declares the exact dimensions, it is possible from *data* now at hand to translate this general notion into nearer mathematical definiteness.

It was the physical limitations at Blackfriars that determined the width of the stage and made it in its relation to galleries and audience different from all public theatre stages.

In the case of the Fortune, modeled after the Globe, the stage was 43 feet wide, with a passage of 6 feet on each side between the stage and that part of the lower gallery where the gentlemen's rooms were,[3]—the place labeled "orchestra" (in the classical sense) in the sketch of the Swan showing a similar arrangement.[4] As pointed out later[5] this condition made it impossible for the custom of sitting on the stage to receive encouragement at the Globe, the Fortune, the Swan, and other public theatres, for such spectators would have cut off the view of the patrons in the gentlemen's rooms.

dren of the Queen's Revels there through the drastic action of James I. See documents from English and French archives in my forthcoming three-volume work on the drama and stage of Shakespeare's time. Also see other extensive documents which I have recently discovered on Shakespeare, Globe, and Blackfriars, in forthcoming separate publication.

[1] Any possible notion that the stage or theatre was changed in arrangement or equipment to accommodate the needs of the Burbage company is precluded by documentary evidence. The former lessee, Henry Evans, surrendered his lease to Burbage (*cf. infra,* I, part ii), which is later regarded by the Burbages as a "purchase" of the lease (*cf. infra,* I, part ii). According to the newly discovered documents concerning Shakespeare and the theatres just referred to (*supra,* 44[10]), the Blackfriars was then leased to Shakespeare and fellows for the same amount as Evans had been paying. They took it over at once just as it was when Evans was forced by the King to give it up.

[2] *Cf. supra,* 35[6].

[3] *Cf.* Fortune contract, *u. s.,* 29[8].

[4] See the Van Buchell—De Witt sketch, *u. s.,* 31[3].

[5] *Infra,* 136–38.

But if at Blackfriars the stage had been modeled after those of the public theatres with an aisle of six feet or even of three feet between stage and galleries, the stage would have been but about 13 to 19 feet wide,—too narrow for acting, even with no spectators sharing it.

So the Blackfriars stage was through necessity built on a plan of its own. The aisle-space as well as the gallery-space at right and left had to be utilized as the wings of the new-style stage. The width of the hall allowed the limit of 46 feet as the width of this extended stage. It was this construction that gave Blackfriars a stage roomy enough for unhampered acting and at the same time allowed gallants to occupy coveted places "on the stage" at right and left of the actors, in the full admiration of the house, but without "wronging the general eye"[1] or obstructing the view of any one.

When the Blackfriars custom of sitting on the stage was imported into France,[2] it carried with it also the form of stage-structure on which it originated. The arrangement of seats at the sides of the stage in French theatres as shown by the testimony of Tallemant des Réaux,[3] Molière,[4] Voltaire,[5] and Goethe,[6] is therefore reflexively contributive to a correct conception of the stage-structure at Blackfriars. In the evidences from performances at Blackfriars,[7] Dekker's *The Guls' Horn-Booke,*[8] and other sources,[9] the stage-patrons occupied the same level as the actors. This fact is likewise shown by the testimony of the above chief French contemporaries of the custom on the Paris stage. Goethe, however, who saw the last of this practice in a French theatre at Frankfurt in 1759, reports that the seats at the sides of the stage there were ranged on a slope slightly above the stage level, but with special reservations still on the stage for officers and other people of importance.[10]

The galleries of Blackfriars as of its foreign followers ended at the line of the stage-front,—just where our evolved first private boxes now are.[11] But there was no wall, nothing more than

[1] *Infra*, 131[1].
[2] *Infra*, 143–47.
[3] *Infra*, 143[3].
[4] *Infra*, 143[4].
[5] *Infra*, 145[1], 145[2].
[6] *Infra*, 146[2].
[7] *Infra*, 132–134.
[8] *Infra*, 133[4], 140[2], 140[4].
[9] *Infra*, 132[1], 132[3], 142[5], 143[1].
[10] *Infra*, 146[2].
[11] *Supra*, 42–43, and plat, 50–51.

a railing, between the termination of the lower gallery and the wings of the stage where the gallants were wont to sit in full view.

Allowing 10½ feet for the width of each gallery,[1] with a corresponding but more elastic space on the stage at right and left for gallants, there was still a minimum width of 25 feet for the actors,—as great a space as sometimes used on the modern stage.[2] The full 46 feet might have been used on occasion.[3] But such practice could have been but rarely necessary or expedient. Hence the use of these wings rather as a source of revenue from social fops whose prime object was not to see the acting but to display their fine dress, especially to those in the high-priced seats of the first gallery, or to patronize the house with their grand presence.

From the available evidences there is no reason to suppose a stage at Blackfriars much smaller than the public theatres had, as has hitherto been done.[4]

The Fortune stage, certainly one of the largest in London, extended to the middle of the yard,—a distance of 40 feet. But a tiring-house at the rear took off 12½ feet, leaving a depth of 27½ feet for the actors.

The construction of Blackfriars necessitated a different arrangement for tiring-house and stage. The accompanying suggestive plat of the seating capacity of Blackfriars,[5] drawn to scale and with reference to known details, shows the possibility of an ample stage of 25 feet in depth, with a passage of four feet at the rear connecting the two lower rooms of the tiring-house.

With an expandable stage approximately 25 feet deep and

[1] The galleries in the Globe and Fortune were 12½ feet wide from the outside of the building, or about 12 feet inside, with a 10-inch "juttey forwards" in the two upper galleries.—See Fortune contract, *u. s.*, 29[3].

See further, *infra*, plats, 50–51.

[2] The modern proscenium opening ranges from about 20 to 40 feet,—the latter serving for the most elaborate grand opera, and the former in plays and "shows" in the smaller theatres. In the chief American cities the average is about 30 to 35 feet, ranging down to 20 and up to 40 or more.—See Julius Cohn's *Official Theatrical Guide* (1907), XII, *passim*.

[3] An actor at the extreme limits of the stage would have been cut off from the view of only those on the same side in the two upper galleries. Sometimes in a modern theatre he is cut off from all spectators on that side of the house.

[4] *Cf. supra*, 43.

[5] *Infra*, 50–51.

from 25 to 46 feet wide as occasion might require, the general notion of the size and structure of Blackfriars stage derived from known conditions as presented on preceding pages, is merely translated into nearer definiteness.[1]

At the rear of the stage and over the passage was a permanent balcony extending doubtless the full width between the two lower rooms of the tiring-house. The balcony did occasional service for certain situations in the plays, but seems to have been used mainly as the station for the musicians.[2]

The Blackfriars stage was elastic in depth as well as in width, and could according to the demands of the given play be varied by curtains or traverses of any required number placed at any required distance between the balcony and the front of the stage.[3] This flexibility was further increased by the use of a canopy[4] as occasion required, which could be set anywhere on the stage to be removed at will.

But the evidences of structure, arrangement, furnishing, and equipment of Blackfriars stage must be deferred to a later work.[5]

[1] While I have little doubt that the dimensions and other items here presented will ultimately prove to be substantially correct, I shall not be satisfied until I turn up certain documents I am now on trace of, which I am confident from the nature of them will settle details with finality.

[2] It is this close juxtaposition of the music to the tiring-house that gives point to the remark, in one of the Chapel Children's plays, about the author's swearing in the tiring-house, and thereby railing the music out of tune, as follows:

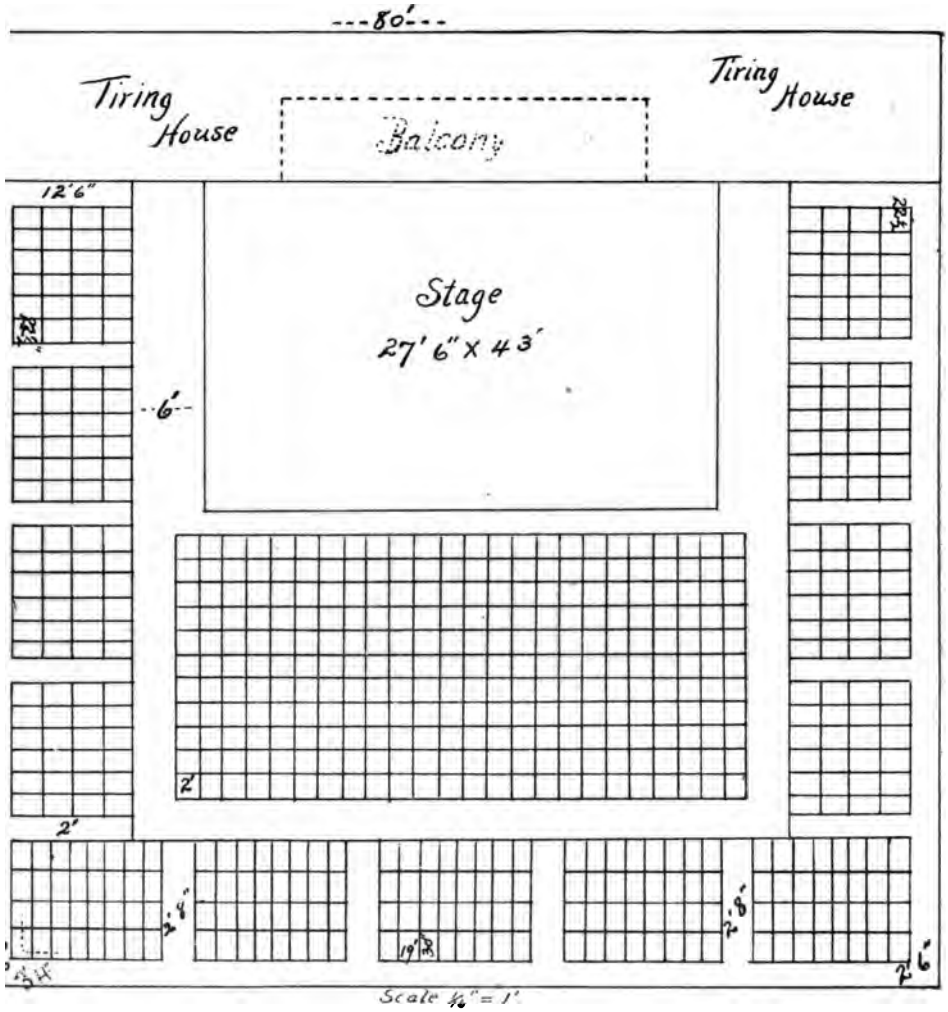
"I assure you sir we are not so officiously befriended by him [the author, Ben Jonson], as to have his presence in the tiring-house, to prompt us aloud, stamp at the book-holder, swear for our properties, curse the poor tire-man, rayle the musick out of tune," &c.—*Induction* to *Cynthia's Revels*. At Blackfriars *ca.* April, 1600.

[3] The gallants on the stage,—whose chief end at the theatre was not to see but to be seen,—are sometimes made the butt of pleasantry for ostentatiously "standing at the helme to steere the passage of scaenes" (*u. i.*, 140[1]), solely for the opportunity of displaying themselves and their fine dresses the better to the audience.

The crossing of traverses opposite their seats therefore could not have been an annoyance to them but may the rather have contributed to their notion of pleasure by the opportunity afforded for officious service.

[4] The canopy was a cloth or canvas affair in the shape of a covered room, a shop, a high wall, or other necessary enclosing apparatus. It is still an accessory more common on the European than the American stage. One of the most effective uses comes to mind in connection with a recent masterly presentation of Wagner's *Die Meistersinger von Nürnberg* on a German stage with acting and staging as perfect as the singing.

[5] There is some hope that the chapter on this head may be ready for the completed work. But there



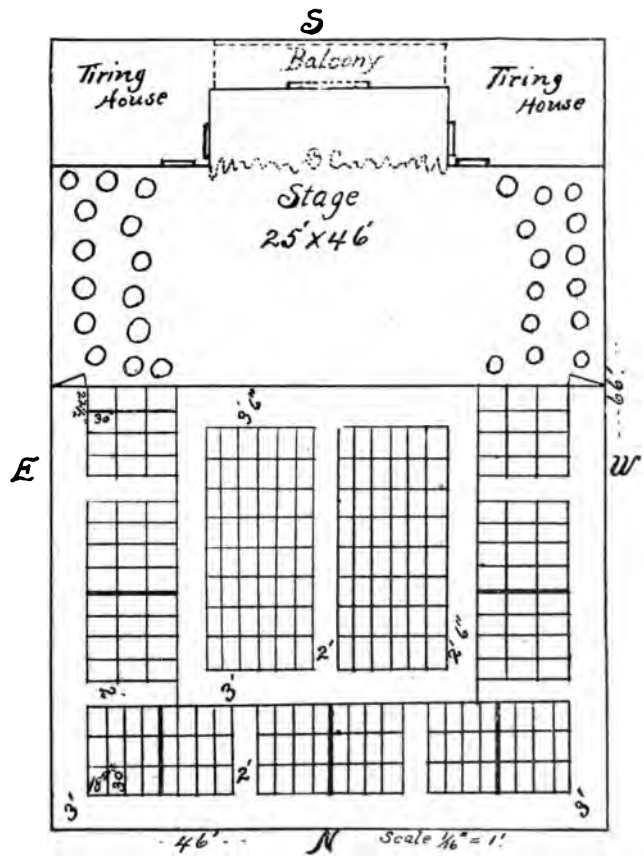
THE FORTUNE THEATRE, 1600

SUGGESTIVE PLAT

Size, 80 x 80 feet

Approximate capacity:

Yard (standing-room only)	264
Side galleries, 3 stories	576
End galleries, 3 stories	480
Total	1320



THE BLACKFRIARS THEATRE, 1597

SUGGESTIVE PLAT

Size, 66 x 46 feet

Approximate seating capacity:

Pit	96
Side galleries, 3 stories	216
End galleries, 3 stories	216
Stage	30 to 80
Total	558 to 608

It may be said here simply that an examination of even such materials as now are known shows a stage plastic to the play in hand in all particulars, a stage of real and individual existence, different in certain essentials from the ratiocinative results of studies hitherto made, in which plays of private and public theatres have been injudicially thrown together to make a sort of universalized or theoretical stage that has no historical basis.[1]

It seems hardly necessary to add that the rooms, galleries, and pit of Blackfriars were all provided with seats.[2]

As already pointed out, the Great Hall of Blackfriars was about half the size of the Globe or Fortune.[3] Its capacity for accommodating spectators was also not far from half.

is nothing sure about it. Not all evidences are available which are necessary in putting out a final statement of the facts. I have confidence from the definite clues unearthed that ultimately I shall reach documents giving schedules of the furnishing and equipment of Blackfriars stage and theatre, as also of the Globe. It is merely a question of time and means.

[1] For a late example, based upon and supporting Professor Brandl's alternation theory, see Cecil Brodmeier, *Die Shakespeare-Bühne nach den alten Bühnenanweisungen* (Diss. Jena, 1904). This work takes the plays of Shakespeare performed at "The Theatre," the Curtain, Globe, and Blackfriars, and constructs of those four dissimilar stages a single composite.

More commendable in theory and generally combative of Brodmeier's position is the recent work of G. F. Reynolds, *Some Principles of Elizabethan Staging*, in *Modern Philology*, April and June, 1905, later reprinted in separate form (Diss. University of Chicago). It is unfortunate that the author did not from the first follow the plan he leaned toward, and use his masses of material in studying the individual theatres to which the respective plays belonged,—as he must ultimately do. Instead he has followed up one single stage-feature after another in plays ranging through Elizabeth's reign and into the period of James I, which were presented at various theatres or not presented anywhere (*e. g.*, the Percy plays), and tried to establish or disestablish therefrom certain principles of staging or facts of stage structure and equipment for the dissimilar theatres throughout that long time.

In both these works there is the impairing spirit of "proving" something and of establishing history by deductive argument. With the great industry displayed and the splendid collection of materials in each study, it would be high satisfaction to find one new fact of dramatic or stage history brought to light or one point of debate placed beyond controversy. It must not be expected however that any study of stage-directions or other internal evidence can ever be final in matters of stage-history. Such a study at best can be but corroborative, never determinative of *data*, and may thus rightly serve to illuminate and enliven placid realities.

[2] A schedule of seats was attached to the lease of Burbage to Evans. See *supra*, 36[4].

[3] *Cf. supra*, 39.

The outside dimensions of the Fortune were 80 x 80 = 6400 sqft. The inside dimensions of Blackfriars auditorium were 66 x 46 = 3036 sqft.

To exhibit at once the size, capacity, and general features in a single view, I have inserted a suggestive plat of the seating capacity of the Blackfriars, and another of the Fortune, side by side,—the only two theatres whose dimensions are exactly known. Both are drawn to a scale of $^1/_{16}''=1'$.

In the absence of exact *data* as to size, number, and arrangement of seats, I first experimented with several conceivable modes of seating before allowing these plats to stand. If, for example, De Witt was correct in saying the Swan held 3000 people, then the Fortune, certainly considerably more capacious, must have accommodated more than 3000. But no method of arrangement, without reducing the seats to an impossible size, filling up the aisles, and standing the audience of the yard like corpses packed on end would make even the Fortune accommodate 3000. Since this larger theatre could not contain 3000, Priest De Witt's declaration that the smaller Swan could may be laid to rest for all time as an over-enthusiastic and very inaccurate guess.[1]

From the many thousands of contemporary documents I have examined, directly bearing upon the life of the times, I am more and more convinced that the people of the time of Elizabeth and James were as solicitous for means of comfort as we are today. Quite contrary to the ill-founded notion commonly circulated by

[1] Some farther conception of the monstrousness of De Witt's estimate may be gained by a comparison of the size of modern theatres. As America boasts some of the largest of the world, I quote certain statistics on seating capacity as presented in Julius Cohn's *Official Theatrical Guide* (1907), XII, *passim*. But it will be noticed that the best of these theatres are not the largest. Great music halls, auditoriums, coliseums, gardens, &c., are left out of the lists.

New York.

Belasco's theatre	950
Criterion	1100
Daly's	1150
Empire	1100
Garrick (Ch. Frohman)	910
New Amsterdam	1675
Lyceum (Dan Frohman)	909
Wallack's	1274

Boston.

Hollis Street Theatre	1640
Park	1277
Tremont	1405
Colonial	1653

Chicago.

Illinois	1285
Powers	1113
Garrick	1400
Grand Opera House	1700
The Studebaker	1549
Chicago Opera House	1700
Auditorium (largest in the world)	4079

These are representative examples. An examination of official statistics shows the seating capacity of the majority of American theatres ranges from less than 1000 to about 1500,—approximately a third to a half De Witt's reported size of the Swan.

writers on stage-history that audiences put up with woeful discomforts simply to see a great play well enacted, it would seem that reasonable consideration was given the tastes of different classes of patrons, and that those in the choicer parts of the house were charged the higher prices on account of the better accommodations as well as the better view. The theatre was then a larger centre of social contact than now,—a spirit still somewhat preserved in parts of Europe, but wholly lost to the amusement-loving theatre-goer of America. The best boxes or rooms were patronized by lords, nobles, and other gentlemen used to the best at home and in society, and it is unlikely that they should have gone in such numbers if discomforts had been so great as to cause them to do penance while watching the play. The Blackfriars especially was frequented by the London *élite,* both gentlemen and ladies, in the wake of Queen and Court, who must have found ample provision for comfort there, in seats not too crowded to accommodate farthingale and puffed trunk-hose. Thomas Platter of Basel, who visited London in 1599, in speaking of certain unnamed theatres, mentions the fact that the higher priced seats there—costing but 3 *d.* however—were provided with cushions.[1] All this is suggestive that if the common art of upholstering of the time may not have contributed even more to the comfort of seats ranging up to a shilling in price, at least the general comfort was satisfactory.

In finally drawing these plats of Blackfriars and the Fortune, such width and arrangement of seats has been indicated as would reasonably provide for the comfortable and safe care of the audience. In both plats all rows of seats in all galleries are 30 inches apart from heel to heel, and each seat in the side galleries is 22½ inches wide, while in the rear galleries of the Fortune they are 19 and of the Blackfriars 18 inches wide.[2] The width of aisles and all other dimensions are sufficiently indicated in the plats.

[1] " . . . begeret er aber am lustigesten ort auf kissen ze sitzen, da er nicht allein alles woll sihet, sondern auch gesehen kan werden, so gibt er bey einer anderen thüren noch 1 Englischen pfennig."—Thomas Platter's *Reisebericht,* extracts of which are published by Prof. Gustav Binz, "Londoner Theater und Schauspiele im Jahre 1599," in *Anglia* (1899), XXII, 459.

[2] In modern theatres the seats are generally 30 inches apart from heel to heel and from 18 to 20 inches wide. Theatre managers tell me they provide the wider seats in

Blackfriars pit is seated with an allowance of 18 x 30 inches for each person. Ample aisle space is allowed for handling the audience. The Fortune yard was used only as standing room. It is possible for average men to stand on a space 18 x 20 inches or, by closer crowding, 18 x 18 inches. But comfortable space for two or three hours' endurance requires as much as 24 x 24 inches, as allowed.

It is generally supposed that the audience stood on all three sides of the public theatre stage. Indeed the Red Bull picture of 1672 seems to indicate this. Such may have been the condition earlier at the Globe, Fortune, and others, but it is doubtful. The entrance to the first gallery, the narrowest of the three galleries at the Fortune,[1] seems to have been from the inside. In fact the Van Buchell—De Witt sketch of the Swan shows this entrance in the passage at right and left of the stage. It is unlikely that the yard-crowd was allowed to block the passage to the gentlemen's rooms, or to bob and sweat, between these privileged places and the stage.

Contrary to the common impression that the stage was in the middle of the yard, with the audience fairly distributed on three sides of it, any sort of plat is serviceable in showing that very little of the audience could have been at right and left of the stage, even with the aisles packed, and that the major portion of it was in front in similar relation to the stage as in the present day.

On a conservative and reasonable basis therefore the Fortune, probably a little larger than the Globe, could accommodate 1320 spectators, while the suggestive plat of Blackfriars shows besides the *habitués* of the stage a capacity of 528, or a total of *ca.* 558 to 608.

There is no known picture of Blackfriars theatre.[2]

the more expensive sections of the house. But the majority of seats are about 18 inches.

[1] The entrance to the two upper galleries is indicated in the Fortune contract as from the outside. It is probably on account of the need of wider rear passageways to and from these outside entrances that the two upper galleries were constructed ten inches wider than the lower gallery.

[2] Professor G. P. Baker has recently published a picture, which he believes to be authentic, in *Beaumont and Fletcher's The Maid's Tragedy and Philaster* (ed. A. H. Thorndike, 1906, *Belles-Lettres Series*, ed. G. P. Baker) frontispiece; and again in his *The Development of Shakespeare as a Dramatist* (1907), 78. In the latter work (p. 44) he says in a note, "The print seems to have been lost sight of,

The extensive alterations necessary to convert the Blackfriars building into a theatre such as the preceding pages show, required time. The property was purchased February 4, 1596. In November following, the work of reconstruction was under way. The petition to the Privy Council in that month declares the owner meant "very shortly" to convert the building into a playhouse.[1] It is not likely that James Burbage finished the work, for he died the following February, and the property came into the hands of his son Richard, the famous Shakespearean manager-actor.

There is slight probability and no evidence that the new theatre was occupied prior to about September, 1597.

The cause of this delay was doubtless, first, the expiration of leases to tenants before work could begin; second, the death of James Burbage; third, the extent of the remodeling required; fourth, time necessary for Gyles and Evans to assemble and train the Children after the enabling royal commission to Gyles in July, 1597.

It has generally been supposed that work was delayed by act of the Privy Council. This supposition is based upon the statement twenty-one years later in the presumptuous and futile order of the Corporation of the City of London to suppress the Blackfriars. It is there stated that the Privy Council in response to the petition of November, 1596, "then forbad the use of the said house for playes."[2] But I find upon personal examination that the original Privy Council Registers, preserved at the Privy Council Office, Whitehall Palace, giving all the official acts of that body, record no such order. It is certain therefore that the statement of the City Council in 1618–[19] is in error. The City

but Mr. Gardiner [the owner] and antiquarians to whom I have submitted it believe it genuine."

I have not seen the original, nor do I know the basis of this conclusion. The documentary evidences, which this chapter attempts to assemble, disprove the relative proportions, shape, height, roof, &c., as shown in the picture. I fear therefore that the print may not be so authentic as I especially should be most glad to believe. The documents show it differs in all essentials from the Blackfriars theatre.

[1] *Supra*, 17[5].

[2] Order for Suppressing the Blackfriars Theatre by the City Council "xxi° die Januarij 1618–[19]."—Original in the Guildhall Archives, *Repertory* 34, fol. 38*b*. Printed in Halliwell-Phillips, *op. cit.*, I, 311. *Cf. supra*, 17[5].

was simply trying to substantiate its long-contended claim,[1] and in doing it, assumed evidence that did not exist.[2]

It may be noted in this connection that, beginning with 1597 and extending to the close of Elizabeth's reign, the Privy Council directed numerous severe orders against the public theatres, but not one against Blackfriars. These cases will be considered in a subsequent chapter.[3] The reasons for this attitude become clear when we know the Queen's relations to Blackfriars, and the City's contention.[4]

Whether James Burbage intended the Blackfriars building thus altered to replace "The Theatre," the lease to the grounds of which was just expiring in 1596, or whether a "theatrum anglice Stage" was set up in it for the Children of the Chapel on the Queen's initiative, as the Diary of the Duke of Stettin might seem to indicate,[5] will be taken up in later paragraphs.[6]

[1] See *supra*, 21, 161[1], and *infra*, 153–54.
[2] See *infra*, 154[2], 161[1].
[3] *Infra*, 148–62.
[4] *Infra*, 126–29, 148–62.
[5] *Infra*, 106–7.
[6] *Infra*, 112, 128[3]–29, 151, 152.

CHAPTER II

THE BLACKFRIARS STAGE.—ITS STRUCTURE, ARRANGEMENT, AND FURNISHINGS[1]

[1] Treatment of materials in this chapter reserved for the complete work.

CHAPTER III

ESTABLISHMENT OF BLACKFRIARS THEATRE UNDER OFFICIAL GRANTS

THE first and only lessee of the Blackfriars thus fitted up for a private theatre was one Henry Evans.[1] He took it for the purpose of exercising one branch of the Queen's Children of the Chapel in the acting of plays under certain official documentary assurances[2] that allowed him the privilege of private profit from rehearsing them publicly.

The date of Evans's first contract with Burbage is difficult if not impossible at present to determine. Certain considerations indicate a very early date. The statement in the Diary of the Duke of Stettin[3] concerning the Queen's establishing this theatre for the special training of the Children, taken in connection with the fact that Evans had certain official assurances concerning the exercise and employment of these Boys theatrically, suggests a possible date prior to the purchase and refitting. On the other hand, the statement of the Burbages in the Globe-Blackfriars

[1] "The pleas in the lawsuit of 1635 show that the Burbages, the owners, leased the Blackfriars Theatre after its establishment in 1597 for a long term of years to the master of the Children of the Chapel."—Sidney Lee, *A Life of William Shakespeare* (5th ed. 1905), 209.

The above sentence contains certain errors of fact overlooked by Mr. Lee:— (1) The pleas in the 1635 suit show none of the items mentioned, and (2) they do not name or otherwise mention the master of the Children of the Chapel (Nathaniel Giles) but do name Henry Evans as lessee. (3) The Blackfriars was owned, at the time of the lease, by Richard Burbage alone who [illegible] was the lessor to Evans [illegible] before, not after, the theatre was established in 1597. (6) These last three items, as also that of the "long term of years" are shown not by the 1635 suit (*cf.* pertinent part in full, *infra*, 57[illegible]), but in two suits of 1612,—Evans *vs.* Kirkham (G.-F. 210–22) and Kirkham *vs.* Painton (G.-F. 223–51). Since making this note on the published documents containing the above items, I have discovered several others containing the same items,—but [illegible] published,—those [illegible] Blackfriars [illegible] 36[illegible], [illegible] origin [illegible] and Shakespeare's [illegible] interest from the first [illegible] and [illegible]

[illegible] *infra*, [illegible]

[illegible] *infra*, [illegible]

Share-papers of 1635[1] points to a date "after" the refitting was completed. This no doubt refers to the long-term lease of 1600, but it seems also inclusive of the first lease or tenancy prior to 1600.

From the documents in the case of Evans *vs.* Kirkham,[2] as also from various documents in the suit of Kirkham *vs.* Painton,[3] and likewise from numerous recently discovered documents not yet published,[4] it is learned that Evans on Sept. 2, 1600, leased the Blackfriars for a period of twenty-one years, term to begin Michaelmas,—i. e., Friday, September 29,—at 40 *l.* per year, giving bond of 400 *l.*, with Alexander Hawkins, his son-in-law, as security, for payment of the rentals. But he had possession and was conducting the theatre long before this date. In his Bill of Complaint against Kirkham, May 5, 1612, Evans in connection with the twenty-one-year lease of 1600, speaks of the Blackfriars as "Then or late in the tenure or occupation of your said orator."[5] Richard Burbage in his own behalf replying to Kirkham in the suit of Kirkham *vs.* Painton[6] substantiates this fact. In explaining why he as owner and lessor exacted a bond of 400 *l.* as security for payment of the lease, he says he considered that "except the said Evans could erect & keepe a companye of Playinge boyes or others to playe playes & interludes in the said Playhouse *in such sort as before tyme had bene there vsed,* that he was lykelye to be beh[ind with] the said rent of fortie pounds."[7]

The words I have italicized indicate the theatre had been in operation for some time. Also, Evans was making a financial success and had previously met his payments of rent. Since

[1] "Now for the Blackfriars, that is our inheritance; our father purchased it at extreame rates, and made it into a playhouse with great charge and troble; which after was leased out to one Evans that first sett up the boyes commonly called the Queenes Majesties Children of the Chappell."—In Halliwell-Phillips, *Outlines of the Life of Shakespeare* (9th ed. 1890), I, 317.

[2] See documents in G.-F., especially 211*a*.

[3] See documents in G.-F., especially 223*c*–224*a*, 230*b*, 239*c*–240*a*.

[4] *Cf. supra,* 36[4].

[5] See document, G.-F., 211*a*.

[6] In G.-F., 223–51.

[7] In G.-F., 234*a*. The statement in the document just preceding this that "Henrye Evans . . . intended then [*i. e.,* when lease was made] presentlye to erect or sett vpp a Companye of boyes . . . in the same" is of course made with strict legal reference to the operations of the twenty-one-year lease. The lease is not retroactive and takes no account of what preceded it.

Evans and no one else was in possession both immediately and for some time prior to the lease of 1600, there seems no uncertainty that he was in possession when Ben Jonson's *The Case is Altered* was first presented there by the Children in 1597, *ca.* Sept.—Oct.[1]

We have no record of any earlier play at the new theatre. Also, there are no other known documentary statements as to the date of its first occupancy.

It is quite possible that the long-term lease, dated Sept. 2, 1600, with term to begin at Michaelmas, was taken by Evans at or near the expiration of his rental year. If so, the date of his first occupancy would be about Sept. 1597,—approximately two to three months after Nathaniel Gyles was granted the royal commission that enabled these two men to unite in carrying out the Queen's purposes.[2]

Nathaniel Gyles,[3] a musician graduated from Magdalen College, Oxford, was sworn Gentleman of the Chapel Royal and Master of the Children June 9, 1597,[4] three days after the death of his predecessor, William Hunnis. The appointment was made by the Queen through the Lord Chamberlain,[5] Lord

[1] See "Plays," in vol. II, of complete work.

[2] It is hardly probable that boys could be taken up and put into condition for singing and acting in less time. It is noteworthy here that the Canons of Windsor allowed to this same Nathaniel Gyles in their Commission of Oct. 1, 1595, "the space of three months" for collecting a similar company of boys for singing and acting. See *infra*, 68[1].

[3] Nathaniel Gyles (1559–1634, Jan. 24): Mus. Bac. June 26, 1585; Mus. Doc. 1622; Master of the Children of St. George's Chapel, Windsor, Oct. 1, 1595, to Jan. 24, 1634, and Master of the Children of the Chapel Royal June 9, 1597, to Jan. 24, 1634. The inscription over his grave in the aisle adjoining St. George's Chapel gives 49 years as Master of St. George's, and 38 years as Master of the Children of his Majesty's Chapel Royal. But the 49 years is an error for 39, as above dates show. The same inscription allots him 75 years.

Between 1597 and 1626, Gyles was the recipient of at least nine royal grants. The chief ones are connected with the present history and are printed or sufficiently noticed in the pages of this and succeeding volumes.

[4] "1597. William Hunnis died the 6th of June, Master of the Children, and Nathaniell Giles sworne gent and Master of the Children in his place the 9th of the same, from Winsore."—*The Old Cheque-Book or Book of Remembrance of the Chapel Royal* (ed. E. F. Rimbault, for *The Camden Society*, 1872), 5.

[5] "1597 June.

The Right Honorable the Lord Chamberlaine, upon the 9th day of June, commanded me, Bartholomew

Hunsdon.[1] This is Gyles's first connection with the Children of the Chapel.[2]

July 2, 1597, the Queen issued her Privy Seal for a Patent to Nathaniel Gyles as Master of the Children and Gentleman of her Chapel. The Patent was issued accordingly July 14.[3]

Mason, Substitute at Greenwich, to sweare Nathaniell Gyles Gentleman of her Majestes Chappell (being before extraordinary), whoe accordingly receaved his oth as other gentlemen before him hath done, in the presence of us whose names are subscribed."—*Idem,* 37 [fol. 24].

[1] See *supra,* 26[3].

[2] "The Children of the Chapel, who disappeared when their playplace was shut up early in 1583, are met with again in 1581; as acting at Croydon, under N. Giles, their master, before the Queen."—F. G. Fleay, *A Chronicle History of the London Stage* (1890), 81.

Fleay is mistaken here concerning Gyles.

Hermann Maas, *Die Kindertruppen* (Diss. Göttingen, 1901), 8, accepts Fleay's error seriously and adds a worse one. He refers to John Nichols, *Progresses, &c., of Queen Elizabeth,* III, 124, 227, as proof that the Children of the Chapel under Gyles acted before Elizabeth at Croydon in 1591. Maas takes these references from Fleay, *op. cit.,* 78 (to which also he refers for his proof), but gives them as his own, although he had certainly not seen Nichols's work. On the pages referred to, Nichols deals with a different matter,—the presence of the Queen in Windsor in 1593, to which indeed Fleay properly refers. But Maas in appropriating Fleay's references mistook them as referring to the first point rather than the last in the sentence in which Fleay has given them.

[3] Both these documents I have found in the Public Record Office. Neither seems ever to have been published. The Privy Seal can be reached by consulting *Privy Signet Index,* under July, 1597. The Patent is obtainable under the index "Duodecima Pars Patentium de Anno XXXIX. Elizabeth Regina."

As in all such cases, the Patent is engrossed from the Privy Seal, and is identical with it in wording of the grant, except where the engrosser has erred or has spelled differently. I quote therefore here and in all similar cases from the Privy Seal as of prior authority.

The pertinent part of this document provides for the instruction and care of only twelve children,—a point of significant interest in the succeeding history. The Privy Seal (the many signs of abbreviation expanded into italics however) with the customary memorandum (in a separate hand) of the date of the Great Seal to the Letters Patent follows:—

> *Memorandum* quod xiiij die Julij Anno infra scripto istud breve deliberatum fuit domino Custodi magni Sigilli Angliae apud Westmonasterium exequendum.

Elizabeth dei gracia Angliae Franciae et Hiberniae Regina fidei defensor &c Prodilecto et fideli Consiliario nostro Thomae Egerton militi magni Sigilli nostri Angliae Custodi salutem Vobis mandamus quod sub dicto Sigillo nostro vestra existente custodia litteras nostras fieri faciat patentes in forma sequente

REGINA &c Omnibus ad quos &c Salutem SCIATIS quod nos de gracia nostra speciali ac ex certa sciencia et mero motu nostris dedimus et concessimus ac per praesentes pro nobis heredibus et successoribus nostris damus et concedimus dilecto Servienti nostro Nathanieli Giles officium Magistri puerorum Capellae

July 3, 1597, the next day after the issue of the Privy Seal for his appointment as Master of the Children of the Chapel, the Queen granted under her signet a warrant for a Commission to Gyles for taking up children for her service. The patent followed July 15.[1]

nostrae Regiae heredum et successorum nostrorum Quodquidem officium Willelmus Hunnis iam defunctus nuper habuit et exercuit ac ratione mortis eiusdem Willelmi Hunnis in manibus ac dispositione nostris existit HABENDUM occupandum et gaudendum officium praedictum eidem Nathanieli Giles per seipsum a tempore mortis praedicti Willelmi Hunnis durante vita sua naturali DAMUS etiam et per praesentes pro nobis heredibus et successoribus nostris concedimus praefato Nathanieli Giles vada siue feoda quadraginta librarum sterling Percipienda annuatim a tempore mortis praefati Willelmi Hunnis pro eruditione duodecem puerorum eiusdem Capellae nostrae ac pro eorum conveniente exhibicione vestiturae et lectuarii de thesauro nostro heredum et successorum nostrorum ad Receptum Scaccarij nostri Westmonasterii per manus Thesaurarii et Camerarii eiusdem pro tempore existente ad quattuor Anni terminos videlicet ad festum Natalis domini Annunciacionis beatae Mariae virginis Sancti Johannis Baptistae et sancti Michaelis Archangeli equalibus porcionibus solvenda vnacum omnibus et omnimodis alijs vadis feodis proficubus Jurisdiccionibus auctoritate priuilegijs commoditatibus regardis et advantagiis quibuscunque eidem officio quoquo modo debitis pertinentibus siue incumbentibus aut impostum debendis siue spectandis in tam amplis et consimilibus modo et forma prout Ricardus Edwards vel dictus Willelmus nuper defunctus aut aliquis alius officium praedictum habuit exercuit vel gauisus fuit habere exercere vel gaudere debuit AC INSUPER de ampliori gracia nostra ac ex certa sciencia et mero motu nostris pro nobis heredibus et successoribus nostris per praesentes damus et concedimus praedicto Nathanieli Giles locum siue officium illud vnius generosorum nostrorum dictae Capellae nostrae Regiae quod praedictus Willelmus Hunnis nuper habuit vnacum feodo seu annuali redditu triginta librarum bonae et legalis monetae Angliae per Annum HABENDUM tenendum gaudendum et exercendum locum siue officium illud praedictum durante vita sua naturali Necnon percipiendum dictum vadum siue annualem redditum sibi vel assignatis suis consimili modo et forma et ad tales terminos in quibus ceteri generosi dictae Capellae nostrae Regiae solui consueuerunt vnacum omnibus alijs commoditatibus priuilegiis praeeminencibus ac emolumentis quibuscunque eidem loco siue officio quoquo modo spectantibus siue impostcrum spectandis Eo quod &c. IN CUIUS rei &c Datum nostro sub priuato Sigillo apud Manerium nostrum de Greenwich secundo die Julij Anno Regni nostri tricesimo nono

Will Parker [engrosser]

The Patent begins with "Regina &c," and continues from there on as a copy of the above Privy Seal, with varied orthography and abbreviations however, ending with the "In cuius rei &c." Instead of the closing "Datum nostro," &c., of the Privy Seal, the Patent closes with the attestation and date of final issue thus:—

Teste Regina apud Westmonasterium xiiij° die Julij

per breve de priuato Sigillo.

[1] Hitherto the only generally accessible source of information as to the date, contents, and powers of this Commission has been Henry Clifton's *Complaint to the Queen*

So far as we know, this Commission to Gyles is the earliest recorded document in the long history of the Children and their influences begun at Blackfriars. It is possibly the foundation

in the Star Chamber Proceedings preserved at the Public Record Office. (Discovered by Mr. James Greenstreet, and published by him in *The Athenaeum*, Aug. 10, 1889, 203–4. Reprinted in F. G. Fleay, *A Chronicle History of the London Stage*, 1890, 127–32.)

The Commission has never been printed. But more than a hundred years ago its existence was merely indicated in Daniel Lysons, *Environs of London* (1796), I, 92.

Both Privy Seal and Patent I have found in the Public Record Office. The former is enrolled in *Privy Signet Index* and is preserved in a bundle of parchments labeled "Privy Seals 1597 July." A further enrolment is in *State Papers, Domestic, Elizabeth, Docquets, 1597–8*, made "quarto die Julij 1597,"—the day following the issue.

My transcript of the Privy Seal, dated at the close 3 July, 1597, with head memorandum of Patent date, is as follows (most signs of contraction and abbreviation, however, expanded into italics):—

> *Memorandum quod* xv^to^ die Julij Anno infra scripto istud breve deliberatum fuit domino Custodi magni Sigilli Angliae apud Westmonasterium exequendum.

Elizabeth by the grace of god quene of England ffrance & Irland Defendo^r^ of the faithe &c. To o^r^ right trusty and welbeloved Councello^r^ sr Thomas Egerton knight keeper of our greate Seale of England for the tyme being greeting. We will and commaunde you that vnder our said great Seale ye cause o^r^ lettres patents to be made forth in forme folowing Elizabeth by the grace of god &c To all Maio^rs^ shirifs bailifs Constables, & all other o^r^ Officers greeting. ffor that it is meete that o^r^ Chappell Royall should be furnished with well singing Children from tyme to tyme: We haue and by these presents doo authorise o^r^ welbeloved servant Nathaniell Giles m^r^ of o^r^ Children of our said Chappell, or his Deputie being by his bill subscribed and sealed, so authorised, and having this o^r^ present Comission wth him, To take suche and so many children as he, or his sufficient Deputie shall thinke meete, in all cathedrall collegiat, parishe Churches Chappells or any other place or places aswell w^t^in libertie as without w^t^in this our Realme of England whatsoeuer they be, And also at all tymes necessary horses, boates, Barges, Cartes, Carres, and waggens for the conveyance of the said Children from any place, wth all manner of necessaryes apperteyning to the said Children by lande or water at suche reasonable prises, as by the discretion of him, or his said Deputie shalbe thought sufficient And also to take vpp sufficient lodging for him and the sayd Children, when they for our service shall remove to any place or places. Provided also, y^t^ if our said servant, or his Deputie, or Deputies bearers hereof in his name cannot forthw^th^ remove the Childe or Children when he by vertue of this our Commission hath taken him or them That then the said Childe or Children shall remayne there vntill suche tyme as our said Servant Nathaniell Giles shall send for him or them. Wherfore we will and commaunde you and eu^r^y of you to whom this our Commission shall come, to be helping ayding and assisting to the vttermost of your powers, as you will answer at your vttermost perills. In witnes wherof &c Gevin vnder our Privy Seale at o^r^ Manno^r^ of Grenewich the thirde day of July in the nyne and thirtieth yeere of our Reigne.

Will Parker [engrosser]

upon which this brilliant career was begun and is, not only for that reason but mainly for other reasons that appear in the sequence, of supreme value in understanding the significance of events.

Upon first reading and upon comparison with earlier similar documents, the Commission seems an ordinary provision for the Queen's Chapel according to ample precedent.

Since the days of Richard III and perhaps even earlier, it had been the custom to impress men and boys by royal authority into service as Chapel choristers. Although research will probably yet reveal similar commissions to Henry Abingdon,[1] Gilbert Banester,[2] or still earlier Masters of the Children, at present the first known authorization for such impressments is the commission from Richard III to John Melyonek, 16 September, 1484.[3]

The Patent is under the index, "Nona Pars Patentium de Anno XXXIX. Elizabeth," and is found in that roll on membrane No. 7, *dorso*. It was engrossed from the above Privy Seal, and begins accordingly after the words "in forme folowing" with "Elizabeth," &c. The engrosser repeated the words "ffor that" after "greeting." Abbreviations and especially orthography in the two documents differ widely,—a condition universally prevalent in the thousands of such records. Otherwise the wording of the grant is the same. The closing sentence of the Privy Seal beginning with "Gevin" is replaced in the patent by "witnes our self at Westm*inster* the xvth day of Julie p*er* bre*ve* de priuato sigillo etc."

[1] Patent, May, 5 Edw. IV (1465), "for the fynding, instruction," &c. of the children. Protected by Act of Resumption in his stipend of 40 *l.* per year, 13 Edw. IV (1473–74).

[2] Protected by Act of Resumption, 22 Edw. IV. (1482–83) in his salary of 40 *l.*, for "the exhibition, instruction, and governaunce of the children of the chapelle."

[3] Placed in wrong historical perspective and printed with expanded and sometimes modernized spellings, inserted punctuations, and a few omissions and other changes in J. P. Collier, *History of English Dramatic Poetry and Annals of the Stage* (1831), I, 34–35; second ed. (1879), I, 40. Reprinted with fewer variations in *The Old Cheque-Book or Book of Remembrance of the Chapel Royal, from 1561 to 1744* (ed. E. F. Rimbault for *The Camden Society*, 1872), vii. Both publications omit the last line (the date) of the document, and Rimbault misdates it as 1485 instead of 1484.

The original document is preserved in Brit. Mus., *Harl. MSS.* 433, fol. 189, from which the following transcript is made (with the more difficult abbreviations, however, expanded into italics):—

Melle-nek Ric &c To all & eu*er*y o^{r} sub-giett^{es} aswele sp*irit*uell as tem-p*or*ell thise o^{r} l*ett*res hering or seeing greeting We let you wite that for the confidence & trust y^{t} we haue in o^{r} trusty and welbe-loued s*er*u*ant* John Melyonek oon of ye gentilmen of o^{r} Chapell and knowing also his expert habilitie and connyng in ye science of Musique haue licenced him and by thise p*re*sent^{es} licence and geue him auctorite y^{t} w^{t}in all plac^{es} in this o^{r} reame aswele Cathedral

It is not yet known whether or not William Cornyshe[1] and William Crane[2] were likewise empowered by their respective sovereigns Henry VII and Henry VIII. But sixty-six years after the grant to Melyonek by Richard III, Edward VI employed the same means to the same ends in a commission to Philip Van Wilder.[3] Two years later, June, 1552, Edward VI gave another authorization of similar nature to Richard Bower, Master of the Children of the Chapel.[4] Previous commissions had provided for the taking up of both children and men as choristers. But in the present case and in all succeeding cases, to the termination of the

churges coliges chappells houses of relegion and al oy^{er} [other] franchised & exempt plac^{es} as elliswhere o^{r} colege roial at Wyndesor res*er*ued & except may take and sease for vs and in o^{r} name al suche singing men & childre being expart i^{n} the said science of Musique as he can finde and think sufficient and able to do vs s*er*uice Wherfor &c yeuen &c at Nottingh*a*m the xvjth day of Septemb^{er} A° secundo A° d*omi*ni 1484 A° 2°

[Richard III's reign began June 26, 1483. His second year therefore is June 26, 1484—June 25, 1485. Hence Sept. 16, 2 Ric. III, is Sept. 16, 1484, not 1485 as Rimbault (*u. s.*) has it. Richard III died 22 August, 1485.]

[1] William Cornyshe (Cornish) is first heard of as Master of the Children in 1493, in Henry VII's Privy Purse Expenses.

[2] The date of William Crane's succession is not known. He is first heard of as Master of the Children of the Chapel in 1526, in the Household Book of Henry VIII.

[3] The patent is to Philip Van Wilder, Gentleman of the Privy Chamber, Feb., 1550, and empowers him "in anie churches or chappells within England to take to the King's use, such and as many singing children and choristers, as he or his deputy should think good."—*The Old Cheque-Book* (*u. s.*), viii.

[4] J. P. Collier, *op. cit.* (1831[1]), I, 142; (1879[2]), I, 140[2], notes the issuance of this warrant of authority, with acknowledgements to Strype, *Eccl. Mem.*, II, 839, which I cannot verify. But John Strype, *Ecclesiastical Memorials* (1822), II, ii, 285, quotes under erroneous date of June, 1551, from King Edward VI's Book of Warrants.

I have not yet found either Privy Seal or Patent. But I quote the following from the original MS. record:—

"June vj°E vj [1552] Comision A com*m*ission to Richard Gowre M^{r} of the Children of the K. Chapple to take vp from tyme to tyme as many children to serve in his sayde chapple as he shall thinke mete.—Brit. Mus., *MS. Reg.* (18. c. 24.), fol. 232, entitled "The Note to all the Bills signed by the King and Councel from Oct. 19, 4 Edw. VI. to the 7 Edw. VI."

The name here is distinctly written "Gowre." But in the Latin patent to him by Elizabeth, 13 April, 1559, as printed in Thomas Rymer, *Foedera* (1713), XV, 517, it is "Bower." It is likewise "Richard Bowre" in the Latin Patent to Bower as Master of the Children of the Chapel, 28 April, 1547, in the Public Record Office, *Patent Rolls*, 1 Edw. VI, Part 9. Never yet printed. His salary is fixed at 40 *l.* per year.

See also *infra*, 64[7].

practice, except the one of 1559–[60] next noticed, only children were to be impressed.[1] In Elizabeth's second regnal year, she issued a Privy Seal prohibiting the taking of singing men and boys from Windsor, Paul's, or the Chapel Royal, but empowering the bearer, not named, to take such from any other chapel.[2] It is not known what this special provision was made for, but it seems quite certainly a commission to the master of the children at Windsor for supplying vacancies, and not for the Chapel Royal.

In 1562 the 1552 commission to Bower is reported to have been renewed by Elizabeth, authorizing him "to take up well singing boys, for furnishing the Queen's Chapel."[3] I have not been able to find this commission, and I suspect the report is not true; for Bower died 26 July, 1561,[4] and Richard Edwards was appointed to the office the same year.[5] Chalmers in reporting this has either confused it with the commission to Richard Edwards of Dec. 4, 1561,[6] or overlooked the natural chronology of a document that fell between the date of Elizabeth's reappointment of Bower, 30 April, 1559, five months after the beginning of her reign,[7] and the date of his death, 26 July, 1561. In either case there is a misdating.

[1] There was little further need for impressment of men-choristers; for so many wanted the position of Gentleman of the Chapel that there seem sometimes, during the reign of Elizabeth and of James I., to have been more gentlemen extraordinary,—that is, applicants in line for promotion to active service as choristers,—than gentlemen ordinary. See *The Old Cheque-Book* (*u. s.*) 62ff., *passim*, particularly the strict regulations of the chapter against using influence on the Lord Chamberlain in securing such appointments, *idem.*, 64, under date Dec. 2, 1592.

[2] The Privy Seal dates 8 March, 1559–[60]. It closes thus: "and we give power to the bearer of this to take any singing men and boys from any chapel, our own household and St. Paul's only excepted." —Printed in full in John Nichols, *The Progresses and Public Processions of Queen Elizabeth* (second ed. 1823), I, 81, from *Ashmolean MSS.* 1113 (Bodl. Lib.); also in J. P. Collier, *op. cit.* (1879), I, 170.

[3] *Cf.* George Chalmers, *An Apology for the Believers in the Shakespeare Papers* (1797), 359.

[4] *Cf. The Old Cheque-Book* (*u. s.*), Notes.

[5] *Infra*, 65[1].

[6] *Infra, ibid.*

[7] Officers of Edward VI or of Queen Mary holding over under Elizabeth had their authority validated by reappointment. Accordingly a new patent was granted to Richard Bower as Master of the Children of the Chapel, dated "xxx Aprilis" in 1 Eliz. (1559). This document provides for instruction and keep of twelve boys, for which Bower is allowed 40 *l.* per year,—just the same as earlier given to him, Abingdon, Banester, and other masters of the children, and later to his successors, Edwards, Hunnis, and Gyles. The latter part of the

Very soon after the death of Richard Bower, Elizabeth empowered his successor, Richard Edwards, with a commission for taking up children under date of 4 Dec., 1561. This document served as a model for the later commissions to Hunnis and Gyles. All three are almost identical. As the commission to Edwards throws much light upon the present history by its identity in purport and near likeness in wording, and has never before been published, it is here subjoined.[1]

patent specifies that these conditions and the powers granted are all as formerly enjoyed by the same Bower under Henry VIII, Edward VI, and Mary.—Public Record Office, *Patent Rolls,* 1 Elizabeth, Part 9, membrane 5.

See also *supra,* 63[4].

[1] I have found both the Privy Seal and the Patent of this commission in the Public Record Office, and publish, as usual in such cases, from my transcript of the Privy Seal as of prior authority over the engrossed Patent. The Privy Seal bears date 4 Dec., 1561, and the execution 10 Jan. next succeeding.

> Memoran*dum* q*uo*d x° die Januarii Anno infra scripto istud bre*ve* deli*berat*u*m* fuit d*omi*no Custod*i* magni Sigilli apud Westm*onasterium* exequend*um*

Elizabeth by the grace of god Quene of England fraunce & Ireland defend[r] of the faythe &c. To o[r] right welbeloued & faythfull Counsaylo[r] S[r] nicholas Bacon knight keper of o[r] great Seale of Englande, com*m*aundinge yo[u] that vnder o[r] great Seale aforsayd ye cause to be made o[r] l*ett*res patent[es] in forme followinge. To all Mayo[rs] sherifs baylief[es] constables & all other o[r] officers gretinge. For that it is mete that o[r] chappell Royall should be furnysshed wth well singing children from tyme to tyme we have & by these present[es] do authorise o[r] welbeloued s*er*vaunt Richard Edward[es] m[r] of o[r] children of o[r] sayd chappell or his deputie beinge by his bill subscribed & sealed so authorised, & havinge this o[r] presente comyssion w[th] hym to take as manye well singinge Children as he or his sufficient deputie shall thinke mete in all Chathedrall & Collegiate Churches aswell w[th]in libertie as w[th]out w[th]in this o[r] Realme of England whatsoever they be And also at tymes necessarie, horses, boat[es], barg[es], Cart[es] & carres, as he for the conveyaunce of the sayd Children from any place to o[r] sayd chappell Royall. w[th] all maner of necessaries app*er*teynyng to the sayd Children aswell by lande as water at o[r] prices ordynarye to be redely payed when they for o[r] s*er*vice shall remove to any place or plac[es] provided also that if o[r] sayd S*er*vaunt or his deputie or deputies bearers hereof in his name cannot forthw[th] Remove the chyld or children when he by v*er*tue of this o[r] Commyssyon hathe taken hym or them that then the sayd child or children shall remayne there vntill suche tyme as o[r] sayd S[er]vaunt Rychard Edward[es] shall send for him or them Wherfore we will & com*m*aunde yo[u] & everie of you to whom this o[r] Comyssion shall come to be helpinge aydinge & assistinge to the vttermost of yo[r] powers as ye will answer at yo[r]vttermoste p*er*yll[es]. In Wytnes wherof &c. Geven vnder o[r] privie Seale at o[r] Mano[r] of St James the fourthe daye of Decembre in the fourthe yere of o[r] Raigne.

R. Jones [engrosser of Patent. Name written in same ink as the memorandum at top].

The Patent is found in the Public Record Office, *Patent Rolls,* 4 Eliz., Part 6, Membrane 14, *dorso.*

Immediately after the death of Edwards the last of October, 1566, William Hunnis was appointed in his place as Master of the Children of the Chapel. Within six months thereafter, namely in April, 1567, Hunnis was in like manner commissioned to take up children. This commission is modeled upon the preceding one to Edwards, with additions of a few words and one new provision as to lodging the children. Thirty years later the Hunnis commission became in turn itself the model from which the commission to Gyles, already quoted,[1] was copied word for word.

The use later made of the commission to Gyles, as dealt with in succeeding pages of the present history, raises into peculiar importance the precedent commission to Edwards and especially this commission to William Hunnis.[2]

The wording of the grant part of the Privy Seal is copied in the patent as is usual, with varied orthography, however, and the direction to the Keeper of the Great Seal is of course omitted in the Patent. The last sentence beginning "In witnes" is replaced in the Patent by the date of its issue, "In wittnese &c yeoven the tenth daye of January

per breve de priuato Sigillo &c."

[1] *Supra*, 60[1].

[2] I have found both Privy Seal and Patent of Hunnis's commission in the Public Record Office, and publish, as in all similar cases, from the Privy Seal, as of prior authority over the Patent engrossed from it.

The Privy Seal and patent were executed by the Queen in person. Hence the omission of the usual introductory paragraph of the Privy Seal to the Keeper of the Great Seal, and the substitution at close of the Patent of "per ipsam Reginam" in place of the customary authority "per breve de priuato Sigillo." The Privy Seal bears Elizabeth's signature near the top of the parchment in her usual tall, strong, individualized separate characters.

The customary date-line at close of the Privy Seal is omitted. But the execution is recorded as

18 April, 1567.

Memoran*dum* q*uo*d xviij° die Aprilis Anno Regni Regin*æ* E: nono ista billa dliberat*a* fuit Dom*i*no Custodi magni Sigilli apud Westm*onasterium* exequend*a*.

Elizabeth R [signature]

Elizabeth by the grace of god &c To all maiors Sheriffes Bayliffes Constables and all other o^r^ officers greatinge For that it iss mete that oure Chappell Royall shulde be furnysshed with well singynge Chylderne from tyme to tyme, We Have and by these presence do aucthorice o^r^ welbeloued servaunte Will*i*am Hunnys master of o^r^ Childerne of o^r^ saide Chappell or His deputie beinge by His bill subscribed and sealed so aucthorised, and Havinge this o^r^ presente com*m*yssion wth Hym, To take suche & asmany Childrne as He or His sufficiente deputie shall thinke mete in all Cathedrall Collegiate p*ar*ishe Churches Chappells or any other place or places aswell w^th^in Libertie as w^th^out w^th^in this o^r^ Realme of Englande whatsoever they be and also at all tymes necessary Horses Boeates barges Cartes Carres and waggens for the conveyaunce of the saide Childerne from any place, wth all maner of Necessaries appertaynynge to the saide Childerne, by

The practice of impressment was not confined to supplying the Chapel Royal. April 26, 1585, Queen Elizabeth granted to one Thomas Gyles,[1] Master of the Children of Paul's, a warrant under her signet, for the taking up of children to be used in her service whenever she might call for them.[2]

Lande or water at such Reasonable prises as by the discretion of hym or his saide deputie shalbe thought sufficiente and also to take vpp sufficient Lodgynge for hym & the saide Childerne when they for o^r service shall Remove to any place or places Prouided also that if o^r saide Servaunte or his deputie or deputies bearers Hereof in His name cannot forthw^th Remove the Childe or Childerne when He by vertu of this o^r comyssion Hath taken hym or them, That then the saide childe or Childerne shall remayne there vntill suche tyme as o^r saide servaunte will*i*am Hunnys shall sende for Hym or them Wherefore we will and com*m*aunde yo^u and every of yo^u to whome this o^r com*m*yssion shall come to be Helpinge aydinge and assistinge to the vttermoste of yor powers as yo^u will answere at yor vttermoste p*er*ills In witnesse whereof &c

The Patent may be found in the Public Record Office in *Patent Rolls,* 9 Eliz., Part 10, Mem. 19 (16), *dorso.* With the exception of orthography, it is an exact copy of the Privy Seal. At the close after "In witnesse whereof &c" is added simply, "Witnes our self at Westm*inster* the xviij^th daye of Aprill

p*er* ipsam Reginam &c."

[1] In no way connected with Nathaniel Gyles of the Chapel Royal and Blackfriars theatre.

[2] This document is printed in full in J. P. Collier, *op. cit.*, (1831[1]), I, 265; (1879[2]), I, 258–59, but misdated by him as 1586. It is also misdated as 1584 by A. Albrecht, *Das Englische Kindertheater* (Diss. Halle, 1883), 31, with reference to John Nichols, *The Progresses, &c., of Queen Elizabeth* (1823), II, 432, where Nichols erroneously prints "26th" for "27th" in the last line of the document, giving the year. Reprinted, with correct date, in *The English Drama and Stage* (ed. Hazlitt, *Roxburghe Library,* 1869), 33–34. Hazlitt was unable to find the original document in the Public Record Office. The reason is, it is in the British Museum, *Sloane MS.* 2035*b*, fol. 73 (*Album of George Willingham, 1585–1650*), from which I offer the following transcript as an accurate copy.

At the top, below the words "By the Queene," Elizabeth has placed her signature with her usual tall, clear, sharply individualized separate letters.

By the Queene.

Elizabeth {Queen's signature}

Whereas we haue authorysed our servaunte Thomas Gyles M^r of the children of the Cathedrall Churche of St Pauls within our Cittie of London to take vpp suche apte and meete Children as are most fitt to be instructed and framed in the arte and science of musicke and singinge as may be had and founde out within anie place of this our Realme of England or Wales, to be by his education and bringinge vp made meete and hable to serve vs in that behalf when our pleasure is to call for them. Wee therefore by the teno^r of these present^es will and require you that ye p*er*mitt and suffer from henceforthe our saide servaunte Thomas Gyles and his deputie or deputies and every of them to take vp in anye Cathedral or Collegiate Churche or Churches and in everye other place or places of this our Realme of England and Wales, suche Childe and Children as he or they or anye of them shall

In 1595 she issued a similar commission it seems to Nathaniel Gyles, then Master of the Children of St. Georges Chapel at Windsor.[1]

These precedents all provided for the taking up of children for singing. But the Chapel Children had been employed in dramatic representations apparently as early as Edward IV,[2] and possibly

finde and like of and the same Childe and Children by vertue hereof for the vse and service afouresaide, with them or anye of them to bringe awaye, withoute anye yor lett^{es} contradiccions staye or interruptions to the contrarie Charginge and commaundinge you and everie of you to be aydinge helpinge and assisting vnto the aboue named Thomas Gyles and his deputie and deputies in and aboute the due execucion of the p*re*misses for the more spedie effectuall & bettar accomplisshing thereof from tyme to tyme as you and everie of you doe tendar our will and pleasure and will aunswere for doinge the contrarye at yor perill^{es} Youen vnder our Signet at our Mano^{r} of Grenewich the 26th Day of Aprill in the 27th yere of our reign.

To all and singules Deanes, Provostes, Maisters and Wardens of Collegies and all Ecclesiasticall p*er*sons and mynisters and to all other o^{r} officers mynisters and subiect^{es} to whome in this case it shall apperteyne and to everye of them greetinge

[1] This document has not yet been discovered. But from the reference to it in the Appointment of Nathaniel Gyles by the Dean and Canons of St. George, coupled with the fact that Gyles served at Windsor accordingly for thirty-nine years (*cf. supra,* 58[3]), it was doubtless granted.

The Appointment of the Dean and Canons of St. George is a rare document in that it recognizes the acting-function of the choir-children. It also throws a side-light on the present history.

"The Dean and Canons of St. George's Chapel, Windsor, by deed dated 1 Oct. 1595, nominate Nathaniel Gyles, B. M. to be Clerk in the Chapel, and one of the players on the organs there, and also to be master, instructor, tutor, and creansor, or governor, of the ten choristers, agreeing to give him an annuity of 81 *l.* 6 *s.* 8 *d.* and a dwelling-house within the Castle, called the *Old Commons,* wherein John Mundie did lately inhabit, with all appertenances, as one Richard Farrante enjoyed the same. The stipend to be paid monthly by the treasurer, over and besides all other gifts, rewards, or benevolence that may be given to the choristers for singing of ballads, plays, or the like: also such reasonable leave of absence as the statutes allow, except when Her Majesty shall be resident, or an installation or funeral of any noble person shall be solemnized: on condition that the said Nathaniel Gyles shall procure meet and apt choristers within the space of three months after avoidance (Her Majesty's Commission for the taking of children being allowed unto him), and that he shall find them sufficient meat and drink, apparel, bedding and lodging at his own costes within the *New Commons* lately appointed for them; and that he shall find a sufficient deputy during the time of sickness and absence."—Bodl. Lib., *Ashmolean MSS.,* No. 1125-33; printed in *The Old Cheque-Book* (*u. s.,* 62[3]), 198.

[2] This statement has no surer foundation than the known dramatic activity of the Master of the Children, Gilbert Banester, author of *The Miracle of St. Thomas,* and the possible use of the Boys by him

even earlier. Certainly they were used as actors within seven years of our first known notice concerning Banester's connection with them.[1] Henry VII employed them at the Christmas festivities of 1490 in a pageant of pantomime and song,[2] and apparently at other times during his reign in pageant presentations.[3] Henry VIII frequently employed them in the presentation of plays,[4] as did also Edward VI.[5] The boys taken up for Paul's, Windsor,

in acting. See J. P. Collier, *op. cit.*, [1]I, 33; [2]I, 40; Thomas Warton, *op. cit.*, III, 132.

[1] *Supra*, 62[2]; *infra*, 69[2].

[2] See Brit. Mus., *Harl. MS.* No. 69, under "The tenth Chapter of the disportes," &c., fol. 34*b*. It is there declared that the boys, dressed as mermaids in this song and pantomime, were the Children of the Chapel. All eight were used,—the full number at that time kept.

On use of the Men of the Chapel as actors at this period, see extracts from the *Household Book of Henry VII* in J. P. Collier, *op. cit.*, [1]I, 44ff; [2]I, 50ff.

[3] This conclusion is based solely on the preceding evidence and the fact that the *Household Book of Henry VII* (*u. s.*, 69[2]), shows payments for these pageants to William Cornish, then Master of the Children, successor to Banester.

[4] See extracts from *The Kynges Boke of payments* during the first twelve years of Henry VIII, in Collier, *op. cit.* (1879), I, 76–79, from which are taken the first four notices here quoted:—

8 H. VIII.—Jan. 4. To Mr. Cornisshe and the children of the chapell that played affore the king, 6 *l.* 13 *s.* 4 *d.*

10 H. VIII.—Jan. 2. To Mr. Cornishe, for playing affore the king opon newyeres day at nyght with the children of the kings chapell, 6 *l.* 13 *s.* 4 *d.*

11 H. VIII.—Jan. 6. To Mr. Cornisshe, for playing afore the king this Cristemas with his children, 6 *l.* 13 *s.* 4 *d.*

12 H. VIII.—Jan. 6. To master Cornisshe for his play, 6 *l.* 13 *s.* 4 *d.*

The following additional notices indicate Henry VIII employed the Children extensively as actors throughout his reign:—

The Interlud was callyd the tryumpe of Love and Bewte, and yt was wryten and presentyd by Mayster Cornyshe and oothers of the Chappell of our soverayne lord the Kyng, and the chyldern of the sayd Chapell, &c.—From a roll of the items of the Revels, Christmas, 1514–[15], in Collier, *op. cit.*, I, 69.

Item, to Maister Crane, for playing before the King with the Children of the Chapell, in rewarde .....xiij[li] vj[s] viij[d] —From the *Household Book of Henry VIII*, in the *Trevelyan Papers* (ed. Collier, for *The Camden Society*, 1857), 146. Under date of New Year's day, 1529.

Item, to Mr. Crane for playing before the King with the Children of the Chappell, in reward vj[li] xiij[s] iiij[d] —*Idem*, 161. Under date of New Year's day, 1530.

Item to M[r] Crane, for playing before the Kinges grace, with the childerne of the Kinges chapell... .....vj[li] xiij[s] iiij[d] —*Idem*, 174. Under date of New Year's day, 1531.

30 Henry VIII.—Dec. 30. Itm to the children of the chapell by way of the King's rewarde, 6 *l.* 13 *s.* 4 *d.*—J. P. Collier, *op. cit.*, I, 116, from the *King's Books of Payments*.

31 Henry VIII.—Jan. 1. Itm to Mr. Crane, for playing before the King with the children, 6 *l.* 13 *s.* 4 *d.* —*Idem*, 117.

[5] Item, to Richard Bowre, for playing before the King's majestie

and the Chapel Royal had under Elizabeth likewise often been used in play-acting, although this function was not specified in the commissions.[1] It accorded however with the Queen's pleasure.

The above comparative view of the commission to Gyles and its precedents shows that the commission to Gyles, out of which arises much of the history of the Children of the Chapel at Blackfriars, instead of being peculiar in its provisions differs in no essential features from its immediate precedents, and is even word for word identical with the commission to Hunnis. Whether the commission to Hunnis or the model of it to Edwards was read two ways or not, each at least could have been if occasion had arisen. The only difference between these precedents and the commission to Gyles seems to be that under Gyles's régime occasion did arise, and his commission consequently was given in practice a double interpretation.

The commission to Gyles can be read and was read two ways, each with perfect consistency. Henry Clifton in his complaint to the Queen, as we shall see, read it in the strictest sense as a direct provision for supplying the Chapel with choristers. Gyles read it thus, and also very differently. We are forced to conclude from events that the Queen and her Court of Star Chamber

with the Children of the Chappell, in rewarde.....vj[li] xiij[s] iiij[d] —From the *Household Book of Edward VI,* 1547–[48], in *The Trevelyan Papers* (ed. Collier, for *The Camden Society,* 1857), 201.

Item to Richard Bower, M[r] of the Children of the Kinges Chappell, for playinge before the Kinges Majestie with the saied Children .....vj[li] xiij[s] iiij[d] —From *The Kinges Booke of Receyptes and Paymentes,* in *The Trevelyan Papers* (ed. Collier, for *The Camden Society,* 1863), II, 20. Under date of New Year's day, 1547–[48].

[1] Examples of this practice under Elizabeth prior to her action in establishing the Children of the Chapel at Blackfriars in 1597 are too voluminous to quote in the present small work. J. P. Collier, *op. cit.* (1831[1], 1879[2]), I, *passim,* assembled some materials. A. Albrecht, *Das Englische Kindertheater* (Diss. Halle, 1883), makes a very brief presentation. F. G. Fleay, *A Chronicle History of the London Stage, &c.* (1890), gives a superficial general view, and is followed by Hermann Maas, *Die Kindertruppen* (Diss. Göttingen, 1901), in a few sketchy paragraphs. The field widens with investigation and includes, besides the Children of the Chapel, Windsor choir, and Paul's boys, also several schools for boys,—as Westminster, Merchant Taylors, Oxford, Eton, &c. Not all of these of course provided Court-entertainments, but they were used at least in private theatricals. No thorough treatment has ever yet been made. The field, though not richly promising, awaits an investigator. Certain pertinent materials, old and new, will be included in my succeeding complete work.

agreed with Gyles's interpretation, and that he read it thus in carrying out the Queen's wish.

In this sense the commission required Gyles to provide children for the Chapel, but allowed him wide liberty. He could take up as many children as he pleased, although the Latin patent issued just the day before specifically provided that he should be required to instruct but twelve for the Chapel Royal. He could remove them whither he would, if he could not at once make use of them at the Chapel, and could board them and lodge them at the royal expense. He might remove them to the Chapel when he thought them suitable for use there. There was no compulsion for his ever taking them thither. The disposition of the children was left wholly within the discretion of Gyles.

This wide liberty was used as follows: Gyles or his deputy took up numerous children, and delivered them to Henry Evans at the Blackfriars theatre. Here they were boarded and lodged by Evans at the royal charge. They were taught singing, playacting, dancing, and other arts, besides grammar-school subjects. For this purpose, "the Scholehouse" at the theatre was used and certain *musici* and *praeceptores* employed. The children acted plays publicly at least once a week. Their performances were attended by nobles, members of the Court, and the Queen herself.

The following pages furnish the evidence of these conditions, and show that this liberal interpretation of the commission was not only in accordance with the Queen's knowledge, but was the carrying out of her will.

These powers to Gyles were supplemented by official concessions to Henry Evans that enabled him to rent the Blackfriars theatre and train the Queen's Children of the Chapel there, with remunerative privileges. The documentary proof of this is connected with events occurring four years later, and is therefore taken up in subsequent pages.[1]

Whether the concessions to Evans bore earlier or later date than the Commission to Gyles cannot yet be determined. The testimony of Clifton's Complaint to the Queen[2] indicates the theatre was established solely on the basis of the latter. But Clifton is making out a case against this commission, and, whether he

[1] *Infra*, 81–82.

[2] *Infra*, 73ff., 77ff.

knew of them or not, does not mention any documents to Evans. We are compelled to be satisfied for the present with knowing that it was under these unusual powers to Gyles and special grants to Evans that the two men united in 1597,—Evans providing the theatre, and Gyles supplying it with children-actors. Although Gyles is not known in the management, it is possible that at least for a time he had some share in the profits; for on May 31, 1601, he was paid 15 *l.* for the two Court-performances of January and February of that year.[1]

[1] See *Plays at Court*, complete work, vol. II.

CHAPTER IV

ACTORS AND SINGERS.—THE TWO FUNCTIONAL DIVISIONS OF THE CHILDREN

THERE were two sets of the Children of the Chapel from 1597 to the death of Elizabeth in 1603, all maintained at the royal charge, and all intended primarily or ultimately for the Queen's service. Of this condition there is ample evidence.

From the earliest history of the Chapel Royal, the children had been lodged and boarded in or near the palace, in close connection with the Chapel.[1] There can be no doubt that the twelve boys provided for in the Latin Patent to Gyles[2] were still thus maintained. The allowance of 40 *l.* to Gyles is a provision for this maintenance and is based specifically upon the same provision to his predecessors, William Hunnis and Richard Edwards.[3] With this set of children we have here nothing further to do.

The boys who acted were maintained at Blackfriars under Evans. The liberal interpretation which the Queen allowed to be put upon the English Commission, as already noticed, shows this condition fully provided for. Clifton in his Complaint to the Queen says it was at Blackfriars that his son was "delivered & committed" by Gyles and his deputy James Robinson "vnto the custody of the sayd Henry Evans,"[4] and that he was "as a prisoner committed to the said playe howse amongste a companie of lewde & dissolute mercenary players."[5] The Complaint was

[1] See *The Old Cheque-Book* (ed. E. F. Rimbault, for *The Camden Society*, 1872), iii; also for various accounts of expense for their keep, J. P. Collier, *History of English Dramatic Poetry and Annals of the Stage* (1831[1]), I, 20ff; (1879[3]), I, 37ff. Also see Sir John Hawkins, *A General History of the Science and Practice of Music* (new ed., 1853), I, 272, 358.

[2] *Supra*, 59[2].

[3] This amount, 40 *l.*, as shown by the various documents quoted or referred to in chapter III, was the sum allowed to each of the known Masters of the Children of the Chapel from Edward IV to James I,—namely, Henry Abingdon, Gilbert Banester, William Cornish, William Crane, Richard Bower, Richard Edwards, William Hunnis, Nathaniel Gyles.

[4] *Athenaeum* (10 Aug., 1889), 204; G.-F., 131.

[5] *Athenaeum, ibid.;* G.-F., 130*a*.

made primarily to stop this use and maintenance of the Queen's Children, and is therefore full of information to the same effect. Specific quotations may be seen under later headings.[1] The declaration of Evans's *Answer* in the suit of Kirkham *vs.* Painton concerning "the dietting and ordering of the Boyes vsed about the plaies there"[2] is further evidence of the fact. The Diary of the Duke of Stettin[3] accords with these established *data,* and adds definite statements as to maintenance of the Children at Blackfriars by the Queen, provisions for instruction, &c. "The Scholehouse" at the theatre, the room above it fitted up for the boys "to dine & sup in," and the newly built apartments above the Great Hall, where the boys probably lodged, show the material provisions for these conditions.

Whether Gyles ultimately took to the Chapel Royal any of these lads who proved good singers, or whether he may occasionally have used some of the twelve Chapel singers in the special music programmes at Blackfriars, there is no present evidence to show. Although he had ample power, there was probably no occasion for doing the latter. He may have done the former in carrying out the provisions for supplying the Chapel; for the Blackfriars was, at least ostensibly by the commission, a sort of preparatory school to the Chapel Royal. From the names of the Boys known to us, and from Clifton's Complaint, it seems the provision may have been "more honour'd in the breach, then the obseruance."[4]

It is with the Blackfriars division of the Chapel Children that this history is concerned. They are important in themselves, and also as the source from which the several later Children of the Revels companies spring.

The division of the Children dates from the Latin Patent and English Commission to Gyles, and is based upon the double function of singing and acting previously performed by one body of Chapel Boys. In this functional division of the Children lies the source of the ultimate segregation of the two bodies under James I.[5]

The number of Boys at Blackfriars under Elizabeth cannot

[1] *Infra,* 78[1], 79–82, 101[2], 113[2], 126, 159.
[2] *Infra,* 98.
[3] *Infra,* 106–7.
[4] *Hamlet* (1623 folio), I, iii, 257*a*.
[5] *Infra,* vol. I, part ii.

have been less than twenty-five, and most probably reached thirty. Some of their plays show twenty characters on the stage at once, while other requirements in certain cases increase this number. All their plays have from twenty to thirty rôles. It seems reasonable of course that certain minor parts in all these were doubled, or given to substitutes. But even then it is impossible to get below twenty, with the probabilities as more nearly twenty-five as a minimum.

I subjoin a list of the undoubted plays of the Children of the Chapel at Blackfriars showing these and other[1] *data* in a general way.[2]

From Clifton's Complaint and from Ben Jonson's 1616 folio we know the names of fourteen of the boys taken up from 1597

[1]The dates of the various plays and their consequent chronological order are here given for the first time. The evidences are solid and in most cases final. See vol. II under "Plays."

[2]Compare this list with the list under James I, *infra*, vol. I, part ii.

	NO. CHARACTERS IN PLAY	NO. ACTORS REQUIRED ON STAGE AT ONE TIME
The Case is Altered (*ca.* Sept.—Oct., 1597) ..	25 + servants	15 + servants (V, iv.)
Cynthia's Revels (*ca.* Apl., 1600).....	23	20 (V, ii.)
Sir Giles Goosecap (*ca.* fall, 1600).....	19+musicians	15 (V, ii.)
Poetaster (*ca.* Apl., 1601).....	25 + "lictors, equites, etc.," and "maids."	18 + lictors (IV, iii.)
The Gentleman Usher (*ca.* sum., 1601)	31 +	22 or more (counting two each for "Pages," "Attendants," and "others.") (V, iii.)
Monsieur D'Olive (*ca.* Oct.—Dec., 1601)	24	11 (V, ii.)
May Day (*ca*, May, 1602)	21 +	16 + (V.)
The Widdowes Teares (Sept. 18, 1602)	23	18 + (V, v.)
The Dutch Courtezan (fall—wint., 1602).....	18 + pages(3), gentlemen, servants, maskers, constables (3), officers.	11 + "halberds" and "officers" (V, iii.)
The Malcontent (spring, 1603)	21	20 (V, iii.)

to 1601. As young Thomas Clifton did not act, we can count but thirteen known members. But Clifton does not pretend to name all,[1] and Jonson names only the principal actors in *Cynthia's Revels*[2] and *Poetaster*.[3]

All the boys here named, as well as those not named, were at the time of their impressment probably from nine to thirteen years of age.[4]

[1]The list given by Clifton (*cf. infra*, 80[1]): John Chappell, John Motteram, Nathan ffield, Alvery Trussell, Phillipp Pykman, Thomas Grymes, Salmon Pavey, Thomas Clifton.

[2]"The principall Comoedians were.

Nat. Field.	Ioh. Vnderwood.
Sal. Pavy.	Rob. Baxter.
Tho. Day.	Ioh. Frost."

—*The Works of Beniamin Jonson* (1616).

[3]In the *Poetaster* list (*idem*), Baxter and Frost are replaced respectively by "Wil. Ostler" and "Tho. Marton." The rest are the same.

[4]This is the usual age of boy-choristers. Clifton gives the age of his son as about thirteen at the time of impressment in 1600. Field (1587–1633) was then thirteen. Underwood, Ostler, and the boys mentioned by Clifton as taken up from the various Grammar-schools and apprenticeships were also probably ten or over at taking up. Jonson's tender epigram on Sal. Pavy, who died apparently soon after acting in *Poetaster*, indicates he must have been near the age of his fellows.

CHAPTER V

STAR CHAMBER PROCEEDINGS AGAINST THE USE OF THE CHILDREN OF THE CHAPEL AS ACTORS

For about three years (1597–1600) the Children of the Chapel at Blackfriars, with Henry Evans as theatrical proprietor and master in play-acting and Nathaniel Gyles as master in music, presented plays and music entertainments without hindrance. But possibly the need for boys of particular excellence as actors and certainly the confidence of unquestioned security of privileges led to an overreaching of authority in impressing lads against parental wishes. Had Evans, who seems mainly at fault, conducted himself more circumspectly in this matter, it is likely we should lack one of our valuable sources of information as to this children's company, their theatre the Blackfriars, and how it was established and managed.

In 1600 this indiscretion of impressment on the part of the management led to a complaint to the Queen,[1] which was later acted upon by her Court of Star Chamber. On December 13, 1600,[2] James Robinson, acting as deputy under the Commission

[1] Preserved in the Public Record Office, *Star Chamber Proceedings, Elizabeth,* Bundle C 46, No. 39, Clifton *vs.* Robinson and others. Discovered by James Greenstreet, and published by him in *The Athenaeum* (10 Aug., 1889), 203–4. Reprinted from Greenstreet's transcript in F. G. Fleay, *A Chronicle History of the London Stage* (1890), 127–32.

[2] Three times in his petition to the Queen Clifton says in connection with this date "since your Majesty's last free and general pardon." Fleay (*op. cit.,* 124*c*) found material in this to explain why the Children of the Chapel did not play at court till 1601,—that is, he says, Gyles had offended the Queen "and although pardoned, had not been received into favor." [*Sic!*]

The statement, put always in connection with a calendar date, is merely a definite dating event in her Majesty's reign to show the offense charged is not barred from trial, since it followed the last general pardon,—which in this case is not true. The same or similar expression is used often in legal documents of the time. See for example this dater in the suit concerning the removal of the timbers of "The Theatre" (Dec. 1598—Jan. 1599) for use in building the Globe "about the eight and twentyth daye of December in the one and fortyth yeere of your Highnes raygne, and sythence your highnes last and gen-

to Gyles, impressed and carried off to the theatre young Thomas Clifton, son and sole heir of Henry Clifton, a gentleman of some importance from Norfolk, who was temporarily residing in London to educate his boy at a grammar-school in Christ Church. Mr. Clifton complains that on the above date Robinson waylaid his son on the way to school and carried him off by violence.[1] Even in the presence of the father, who had at once come to take his son away, and in defiance of him or any other nobleman whose sons they claimed a right to take at will, the boy was turned over to Evans, given a scroll of paper containing parts of a play to learn, and commanded with threats to set about his task.[2]

Failing to secure his son, Clifton immediately appealed to Sir John Fortescue,[3] Chancellor of the Exchequer and member of the Privy Council,[4] probably a personal friend. Upon Sir John

erall pardon."—*Court of Requests Proceedings, Elizabeth,* Bundle 87, No. 74, Burbage *vs.* Alleyn, Bill of Complaint. In Public Record Office. See extracts in J. O. Halliwell-Phillips, *Outlines of the Life of Shakespeare* (9th ed. 1890), I, 360.

In lieu of a fixed statute of limitations, it was customary for the sovereign at irregular intervals fixed at will to wipe out all offenses except the graver ones of treason, murder, &c., by a general pardon. By such pardon, action against any one who had previously committed any of the offenses it covered was forever barred. But this had nothing to do with future offenses. Hence the declaration in actions in court that the offense charged was committed "since" the last general pardon, to show that action is not barred.

In the latter half of Elizabeth's sovereignty, not to go farther back, such pardons were issued in the following years of her reign:—23, 27, 29, 31, 35, 39, 43. James I issued general pardons in only three years of his reign, 3, 7, 21.—See *Statutes of the Realm,* "General Pardon," under the various years indicated.

The case of Burbage *vs.* Alleyn concerning the Theatre and Globe (*u. s.*) refers to the act by which all offenses before 4 Aug. 39 Eliz. (1597), except treason, murder, &c., were pardoned. Similar cases can be cited by the hundreds.

But the case of Clifton is peculiar in its reference. The offense charged was committed 13 Dec., 1600, the year before the Queen's act pardoning offenses committed prior to 7 Aug. 43 Eliz. (1601). This pardon by right debarred action. Yet the complaint was filed over four months after the pardon, *i. e.,* Dec. 15, 1601, with the declaration three times that the offense of Dec. 13, 1600, was committed "since" this last pardon. Just why this false statement is made is not clear.

[1] " . . . the said James Robinson . . . the sayd Thomas Clifton wth greate force & vyolence did seise & surprise, & him wth lyke force & vyolence did, to the greate terror & hurte of him the sayd Thomas Clifton, hall, pull, dragge & carry awaye to the said playe howse in the blacke fryeres aforesayd," &c.—*Athenaeum* (10 Aug. 1889), 204; G.-F., 129.

[2] *Athenaeum, ibid.;* G.-F., 131.

[3] *Ibid.*

[4] *Cf.* Public Record Office, *State*

Fortescue's peremptory order, the boy was released within twenty-four hours after seizure.

Nothing further seems to have been done in the case of these violent proceedings until about a year later.[1] Mr. Clifton, nursing his hurt and collecting evidences of seven other seizures[2] together with important information as to how the Commission to Gyles was being interpreted in practice, then laid before her Majesty a Bill of Complaint. He recites in detail all the circumstances and conditions of the seizure of his son, along with facts, implications, and erroneous statements touching the history of the organization under "Gyles, Evans, Robinson and others." It is later made even more baldly evident than here appears that he wanted not merely to punish the offenders for the injury that still rankled, but mainly to suppress the Blackfriars theatre.[3] The Bill shows not a little animus, and very strong puritanical opposition to plays and playhouses. Hence its statements, though touching vital facts, must be considered with caution. Some of them are substantiated by evidences in later pages, while others prove utterly false.

Clifton aims chiefly to show in his Complaint that the Commission to Gyles was procured simply as a blind to secure apparent royal endorsement of a base and wicked practice; that in fact "the said Nathaniell Gyles, confederating himself with one James Robinson, Henry Evans and others[4] . . . by cullour of your ma^ties^ said letters patents & the trust by your highnes thereby to him the said Nathaniell Gyles committed . . . they the said confederates devysed, conspired & concluded, for theire owne corrupte gayne and lucre, to errecte, sett vpp, furnish and mayn-teyne a play house or place in the Blackfryers."[5]

To substantiate this charge of abuse of authority and trust,

Papers of 1600–1601, *passim;* also, *Acts of the Privy Council, 1600–1601* (ed. Dasent, 1906).

[1] Clifton dates the impressment of his son as Dec. 13, 1600, "about one yere last past, & since your ma^ties^ last free & generall pardon."—G.-F., 129*a*.

[2] *Infra,* 80[1].

[3] *Infra,* 159.

[4] This general word "others" we find later (98–101) includes primarily the Yeoman of the Revels, Ed. Kirkham, who as official of the Queen furnished the stage-apparel for the Children, and made large weekly "disbursements" for their maintenance at Blackfriars. It is possibly intended to include other officials. But this remains yet to be worked out.

[5] G.-F., 127; *infra,* 101[2].

Clifton cites other specific cases of seizure, and declares that the boys so taken could not sing and were not taught to sing.[1] This may be true of the particular boys or not. But as applying to the whole set of boys it is, as we shall see later, false. He declares also that the boys mentioned as well as those not named were taken up "against the wills of the said children, their parents, tutours, masters & governours.[2]—Which seems wholly unlikely.[3]

Other evidences to be examined later both in Clifton's own Complaint and in other sources only add to the proof that the general conduct of the theatre was in accordance with and not contrary to authority, as Clifton would here show. It is, however, true that from the time Evans enters as a factor in the career of the Children of the Chapel, a large actuating spirit is private gain-getting.[4] Clifton has grounds for his charge that the Boys were used "to the mercinary gayne & pryvat comoditie of them the said Nathaniell Gyles, Henry Evans, James Robinson, & other theire said confederates,"[5] if we temper the animus out of his

[1] Amongste wch nombers, soe by the persons aforesaid & theire agents soe vniustlie taken, vsed & employed, they have vnduly taken & soe employed one John Chappell, a gramer schole scholler of one Mr Spykes schole neere Criplegate, London; John Motteram, a gramer scholler in the free schole at Westmister; Nathan ffield, a scholler of a gramer schole in London, kepte by one Mr Monkaster; Alvery Trussell, an apprentice to one Thomas Gyles; one Phillip Pykman and Thomas Grymes, apprentices to Richard and Georg Chambers; Salmon Pavey, apprentice to one Peerce; being childeren noe way able or fitt for singing, nor by anie the sayd confederates endevoured to be taught to singe, but by them the sayd confederates abusively employed, as aforesayd, only in playes & enterludes.—*Athenaeum* (10 Aug. 1889), 203–4; G.-F., 128.

[2] *Ibid.*

[3] I have recently found a contract between the Blackfriars management under James I and the mother of a certain boy for his employment there as an actor, in which it is declared that the employment is agreed to upon the frequent and earnest solicitation of the mother. (Published in full in vol. III of complete work.) This was for mere acting. When to that was added also the honor of chorister, at least by name if not in practice, in the Chapel Royal, it may be doubted whether all parents felt such antipathy to having their children at Blackfriars during those brilliant years at the close of the reign of Elizabeth, as Clifton here declares.

[4] The Burbages, father and sons, Henslowe, and Alleyn were illustrious examples of commercial successes in managing companies and theatres. Such sudden and easy wealth may easily explain in a measure the present venture and the spirit in it so far as Evans the lessee and manager of the theatre is concerned.

[5] *Athenaeum* (10 Aug. 1889) 203; G.-F., 127.

words. In his notion of "conspiracy," "confederacy," "corrupt gayne and lucre," &c., his animus leads him to overstate his case. He substantiates the point of private profit by showing that in reply to his remonstrance concerning the forcible taking and detaining his son to "be employed in that vyle & base manner of a mercynary player in that place, & in noe other sorte or manner,"[1] these men "did then & there vse theis speeches, that were yt not for the benefitt they made by the sayd play howse, whoe would, should serve the Chappell wth children, for them."[2]

In spite of the coloring Clifton wishes to give this declaration, it is clear that it is simply a plain business statement to the effect that so far as using the children for private profit was concerned, they had ample authority. Incidentally also the statement indicates that the Blackfriars Boys were taken up to be prepared for the Chapel, and that as a reward these private advantages were allowed. So far as private profit was made in accordance with the authority granted and privileges allowed, it was legitimate. Cause for royal displeasure and the Court's severity in acting upon Clifton's Complaint lay elsewhere.

The case was acted upon by the Queen's Court of Star Chamber. Unfortunately the records among which this decree was filed seem long ago to have perished.[3] Our sole knowledge of the nature of the decision is in Edward Kirkham's Replication in his suit in Chancery against Painton, 1612.[4] It seems based wholly upon Clifton's showing of forcible impressment against parental wish, and fell solely upon Evans.

It is likely that Kirkham's attorney, Stephen Price, had the decree before him as he wrote; for after stating the main points in it, he refers the court to the document for the particulars in verification. From this we learn that "the said Evans in or about the three and ffortieth yeare of the raigne of the late Queen Elizabeth was censured by the right honorable Courte of Starr-Chamber for his vnorderlie carriage and behauiour in takinge vp of

[1] *Athenaeum* (*u. s.*) 204; G.-F., 131*a*.

[2] *Ibid.*

[3] "None of the Orders or Decrees of this Court [Star Chamber] are known to exist."—S. R. Scargill-Bird, Assistant Keeper of the Public Records and Secretary of the Public Record Office, *Guide to the Public Records* (2nd ed. 1896), 198.

[4] G.-F., 248*c*; *infra*, 81–82[1].

gentlemen's childeren against theire wills and to ymploy them for players, and for other misdemeanors in the said Decree conteyned and ffurther that all assureances made to the said Evans concerninge the said house or playes or Interludes should be vtterlye voyde, and to be deliuered vpp to be cancelled as by the said Decree more at large it doth and may appeare."[1]

This decree was rendered simply upon the presentation of the side of the prosecution. No "Bill of Answer," "Replication" or "Rejoinder" was apparently allowed.[2] Had there been, we should expect to find these additional records filed with the Bill of Complaint, as is the custom in such cases in most English courts of the period.

Although Clifton declared that not only his boy but all the other seven he names as well as those not named were unwillingly, forcibly, and "vniustlie taken, vsed & employed,"[3] it seems quite likely that if it had not been for Court-influence, possibly through Sir John Fortescue, in enforcing the really minor claim of personal injury to Clifton's feelings, the case might not have been entertained. For the decree by no means accomplished what he aimed at, the suppression of Blackfriars theatre, and fell only upon the chief offender against him.

This conclusion is strengthened by the fact that the decree was based wholly upon "the taking up of gentlemen's children,"—a statement which, so far as can be determined, fits only Clifton's case.[4] It is further strengthened by the fierce satire in act V, scene v, of Chapman's *The Widow's Tears* (September, 1602). This is the first known new play that could have been wholly composed and written after the decision, and is bitter in its attack upon one-sided justice, in which neither "replications" nor "rejoinders" are allowed, and only two persons are heard in the case, with judgment rendered "at first sight," &c.[5] It cannot be declared with the certainty of documentary statement that the satire was meant for this case. But as we have documentary evidence that *The Widow's Tears* containing this satire was acted in September, 1602, it is difficult to see how the Blackfriars audience

[1] G.-F., 248*c*.
[2] *Cf. infra*, 82[5], 86–87[1].
[3] *Athenæum* (10 Aug., 1889), 205; G.-F., 128.
[4] *Cf. supra*, 80[3]; *infra*, 180[2], 180[3].
[5] See further under "Plays" in vol. II of forthcoming work.

familiar with the status and conduct of that theatre could have been prevented in the fifth act from thinking of the Star Chamber case thus recently aimed at their playhouse.

The effect of the decree was to inhibit the Blackfriars under Evans's management, absolutely prohibiting his use of the Children of the Chapel in future. It did not shut up the theatre nor prohibit the Queen's Children from being employed in plays at Blackfriars thereafter, under a new management. Nor did it in any way affect Gyles in his official position, which he continued to hold the rest of his life. The Queen's Court seems to have found no fault in him, and he continued thereafter as formerly to supply the children of her Majesty's Chapel for both singing and acting. His furnishing of the children as actors and singers at Blackfriars was upon this and numerous other evidences within the powers of his Commission.

Nor did the decree affect the Yeomen of the Revels, Ed. Kirkham, who as official of the Queen had furnished apparel and disbursed money weekly for the maintenance of the Boys at Blackfriars; for he continued to do the same throughout the rest of Elizabeth's reign, and even became a partner in the management and sharer in the profits.[1]

In the judgment of the Court Evans alone had transgressed his privileges and abused the trust reposed in him.

Certain other phases of the Clifton case and the Queen's attitude in it will be taken up later.[2]

[1] *Infra*, 87–94.

[2] *Infra*, 126, 159.

CHAPTER VI

DATING EVENTS, AND ESTABLISHMENT OF NEW MANAGEMENT[1]

THE exact date of Clifton's Complaint and the Decree of the Court would be of value in placing events in proper chronological order. Both are determinable approximately, at least by year and court-term.

Evans after three successful years, finding the venture profitable enough to make it the business of his life, as already noted, leased the Blackfriars of Richard Burbage September 2, 1600, for a period of twenty-one years.[2] This was three and a half months prior to impressing young Thomas Clifton, Dec. 13. The Complaint to the Queen as we have seen, was made "about one yere"[3] after the offense; *i. e.,* in the fall or winter of 1601.[4] Circumstances lead to the feeling of some certainty that if the bill was not exhibited in court early in the Michaelmas (Oct.–Dec.) term,

[1] This chapter was prepared for the press three years ago. Since then I have discovered certain documents and *data* settling definitely some of the points in question. The corroborative and final nature of these gives some hope for the other items, when the field is fully worked out. Had I come upon the new materials earlier, the chapter would not have taken its present form. But the matter is allowed to stand, with some security that the items dealt with will not hereafter be thrown into admired disorder as they have been in the past by different writers. The whole chapter serves as an example of the severe process of elimination and exhaustion that I have had to follow in occasional parts of chapters where the sterner authority of documentary declaration failed.

[2] See *supra,* 57[2]–57[4].

[3] See *supra,* 79[1].

[4] Since writing these first five paragraphs, I have examined Clifton's original Bill of Complaint at the Public Record Office. It bears no date on its face. But as is the case with all bills in Star Chamber, the date of filing is recorded on the back of the parchment. The date of trial is endorsed below this.

> "Marti decimo Quinto Decembris Anno xliiij Elizabeth Regine
>
> Willm Mill
>
> p octab Hillar"

Mr. James Greenstreet, who discovered this document, failed to note its date when he published it in *The Athenaeum,* 10 Aug., 1889, 203–4. Dependence upon his publication as accurate long led me to suppose the document undated.

knowledge of the forthcoming charges reached Evans in some other way in October. For Evans, on the importunity of his wife, deeded everything,—Blackfriars lease, household goods, and all,—to his son-in-law, Alexander Hawkins, on the twenty-first of that month. Doubtless as a result of information or intimation of Clifton's charges, fearing the case might go hard with him and entail financial loss, he put his property thus out of his hands, as men do yet, to save it.[1]

The Decree fell between the date of this transfer of property and April 20, 1602, when Evans circumvented its inhibitions against his using the Queen's Children by entering into certain Articles of Agreement.[2] As the Easter term of 1602 did not open until May 1, the Decree, causing this new arrangement, fell in either Michaelmas or Hilary term.[3] Kirkham's attorney in the

[1] Evans in his *Answer* in the case of Kirkham *vs.* Painton (G.-F., 245*a*) declares he made this assignment solely to indemnify Hawkins on his 400 *l.* bond to Burbage as security for the rent of Blackfriars (*supra*, 57[2]–57[4]), and that he did "vpon the earnest and ymportunate request of his this def[ts] wife, graunt & convey vnto him the said Alexander Hawkins, who married this def[ts] daughter, all his goodes chattels and leases implem[ts] howshold-stuff, wares, comodities, & all his goods. Notw[th]standing w[ch] graunt this def[t] kept the said originall Lease made by the said Richard Burbadge, and hath ever since enioyed and contynued the possession aswell of all his said goodes, leases, implements & other the premises," &c.

It does not seem to have occurred to Hawkins or Evans or the wife that such security was needed when a year ago the lease was made. The cause of the present act cannot lie in lack of prosperity. For the Children at Blackfriars were never more popular than in this year of 1601 (see, for example on *Hamlet*, *infra*, 176–77) and doubtless the plays brought Evans more money than formerly. The sudden anxiety of all parties concerned,—especially of the wife,—the wholesale nature of the assignment, and the fact that in spite of the transfer (*non bona fide*) Evans still kept and enjoyed all, coupled with the circumstance that Clifton about this time presented his case in Star Chamber, seem conclusive circumstantial evidence. [Later.—As shown *supra*, 84[4], Clifton's Bill was filed Dec. 15, 1601, seven weeks after this transfer. This does not alter the probability that Evans had learned of the impending danger, but rather strengthens it. For had Evans not made the transfer until after the filing of the complaint, his act would have been held in law as an attempt to defraud.]

[2] *Infra*, 87–91.

[3] Court terms of this period under Elizabeth and James I:—

Michaelmas term begins 9 or 10 Oct.
Hilary term begins 23 or 24 Jan.
Hilary term ends 12 or 13 Feb.
Easter term begins 17 days after Easter.
Trinity term begins Friday after Corpus Christi day (June).

—See John J. Bond, Assistant Keeper of Public Records, *Handy-Book of Rules and Tables for verifying Dates with the Christian Era*, &c. (1869).

replication already quoted from,[1] dates it "in or about the three and ffortieth yeare" of Elizabeth.[1] Her forty-third year ended November 16, 1601. The "in or about" might mean,—since Kirkham is giving purposely a twist to events,—either the closing of the forty-third year or opening of the forty-fourth, and therefore fit either Michaelmas or Hilary term. Also, the Kirkham documents in this suit assign to forty-third Elizabeth certain other events closely connected with Clifton's Complaint and the Star Chamber Decree, but belonging in April, 1602.[2] It may be there is similarly here in Kirkham's dating the Decree an error of two or three months in the regnal year.

There is strong probability then that the Decree fell in Hilary term (Jan.-Feb.) 1602.

Other considerations are contributive to the same conclusion. It is not likely that the new arrangements in management were held in suspense from October to the following April. The new partners were eager to join Evans,[3] and Evans himself could not openly continue in personal charge. The briefer interval, from Hilary to April 20, seems the more probable one for making new arrangements.

Also, the evidences are convincing that the Decree fell after *Hamlet* was on the stage. Both *Hamlet* and the Decree are answered from the Blackfriars stage in this order. In his *May Day*, acted in the spring of 1602, Chapman ridiculously parodies some of the striking parts of *Hamlet*, as the "To be" soliloquy, "What a piece of work is man," &c., with numerous other scrappy satiric drives, all of which sound as if Chapman had heard the new tragedy a time or two while his *May Day* was in progress and had caught just enough to serve as basis for absurd take-offs.[4] *May Day* seems thus Chapman's and the Children-company's laughing answer to Shakespeare's and the Globe's strictures in *Hamlet* on the Blackfriars establishment. But in Chapman's next play, *The Widow's Tears*, seen on the Blackfriars stage Sept. 18, 1602,[5] doubtless the opening play of the season, is the sharp satire, as already noticed,[6] apparently aimed at results of the Star Chamber

[1] *Supra*, 81[4]–82[1].
[2] *Infra*, 89.
[3] *Infra*, 87–88[1].
[4] See *infra*, 168.
[5] See *infra*, 106, 115, 118[1], 120.
[6] See *infra*, 82–83.

case. It seems quite likely that the satire is directed not merely at the Decree, but also at Lord Hunsdon's consequent driving Evans into the country in May, 1602.[1]

It would be comforting to know exactly whether the Queen's attendance at a play at Blackfriars Dec. 29, 1601,[2] preceded or followed the Decree. It was certainly [*cf.* 84[4], 96[4]] later than the Complaint. I should be glad to believe if probabilities would allow, that it was subsequent also to the Decree; for that would give an added item in the Queen's determination with reference to Blackfriars. However, as the Queen seems to have been accustomed to attend plays there, the discovery of the exact date of the Decree as antecedent to this single event would probably do no more in the present regard than reenforce our knowledge of the favor and support she gave in the theatrical use of the Chapel Boys. The slight probability that the Decree preceded is outweighed by the stronger probability, as shown above, that it fell in Hilary term.[3]

After the Decree, the concessions for use of the Chapel Children were apparently granted to Kirkham,[4] Rastell, and Kendall.[5] But Evans still held the lease. So these men came to him

[1] See *infra,* 93.

[2] See *infra,* 95–96[5].

[3] This latter probability is made a certainty by the dates of filing and trial endorsed on the back of Clifton's Bill of Complaint, discovered since writing these paragraphs, as noted *supra,* 84[1], 84[4]. The last line of the endorsement, "p octab Hillar," indicates the trial was in Hilary term (Jan.—Feb.). There was no postponement. Easter term in 1602 did not begin until May 1, but the Decree had already been rendered prior to April 20, 1602, when Evans through consequent necessity entered into new arrangements for the conduct of the Blackfriars. This settles the Decree as in Hilary, *i. e.,* between Jan. 23 and Feb. 13, 1602.

[4] Edward Kirkham succeeded Walter Fyssche as Yeoman of the Revels. Fyssche's name is signed for the last time to the report of the Master of the Revels, Ed. Tyllney, Oct. 31, 1581. (*Extracts from the Revels at Court,* ed. P. Cunningham, *Shakes. Soc. Pub.,* 1842, 175). Kirkham's name appears thereafter under Tyllney and Buck. Its first appearance is to the report of [Oct. 31]—Feb. 14, 1582–[3]. (*Idem,* 187.) He was still Yeoman under Buck in 1615 (Public Record Office, *Declared Accounts of the Pipe Office,* Roll 2005). He was granted letters patent for his office 28 April, 28 Eliz. (1586). (Published in *A Collection of Ancient Documents Respecting the Office of Master of the Revels,* &c., ed. J. O. Halliwell, 1870. Only 11 copies printed. Quoted in part, *infra,* 99[3]. But he had already been occupying the place for at least three years, as shown above.

Kirkham was Yeoman during the whole existence of the children-companies. In their history, he through his official position is even a more important factor than Evans.

[5] From various newly found documents touching the managers per-

and "earnestly labored with and entreated"[1] him with the result that on April 20, 1602, Articles of Agreement were entered into between Evans and his son-in-law Hawkins on the one side and these three men on the other to form a copartnership and share expenses and profits half-and-half.[2]

That the new partners felt they had valuable concessions which, however, were dependent upon a place of acting and which Evans as lessee of the theatre might easily injure if not bound in a penal sum, is shown by the fact that they exacted of Evans and Hawkins a 200 *l.* bond[3] of even date for the faithful performance of the contract, but gave none in return. Apparently to circumvent the Star Chamber decree, a separate agreement was entered into by which the new men were to pay Evans eight shillings a week, evidently as salary for managing the theatre,[4] for the carrying out of which they gave Evans a bond under the same date for 50 *l.*[5]

Evans could not be known openly in the management.[6] So by the new arrangement his son-in-law Hawkins and these three men became nominally the Masters, while he was their hired manager, although he still held chief control.—And the Children of the Chapel continued at Blackfriars practically as before.

Since the company was operated under these Articles until its termination in 1608, it seems worth while to settle once and for

sonally as well as in their conduct of the Blackfriars, particularly under James I, William Rastell was a London merchant who, however, had no large part in the management, and Thomas Kendall was a haberdasher, who later, under James I., became the Blackfriars manager. See further, complete work, vol. I, and vol. III.

[1] "And he your said oratour beinge soe possessed one Edward Kyrkham of London gent' William Rastell and Thomas Kendall late of London deceased ernestlye labored wth and entreated your said oratour that he your said oratour would suffer them to have and enioye some parte of the demised premisses wherevppon it was agreed and concluded," &c.—Evans *vs.* Kirkham, *Bill of Complaint,* G.-F., 211*b*.

That these solicitations came from the new men, not from Evans, is admitted by Kirkham in replying to the above paragraph:—"true yt is that he this def^{te} and the said William Rastell and Thomas Kendall in the bill likewise named did treate and had communication wth the said compl^{t} to such end and purpose as in the bill is set forthe, and that thervpon it was agreed and concluded," &c.—Evans *vs.* Kirkham, *Answer,* G.-F., 216*a*.

[2] *Infra,* 89[7], 92[2].

[3] *Infra, ibid.*

[4] *Cf. infra,* 98, 102–4.

[5] *Infra,* 102[3].

[6] *Cf. infra,* 93.

all the date above stated. Except for this reason and certain items of essential reference, the rest of this chapter might better be omitted.

Kirkham puts the date of the Assignment[1] and Articles together "in or about" 43 Elizabeth,[2] declaring that the assignment of one-half of the lease was made by Evans to Hawkins in trust for the new partners, Kirkham, Rastell, and Kendall, in consideration that they "would disburse about the premises the summe of ffouer hundred pounds,"[3]—all as a part of the Agreement.[4] But Kirkham's dating throws both Assignment and Articles together,—which proves erroneous. The statement, "in or about" 43 Elizabeth, is general enough to fit the known dates of late 1601, or early 1602 (44 Eliz.). His dating is further vitiated by proof[5] that he fabricates both the transfer of the lease[6] and the 400 *l.* expenditure[7] stated in connection with it.

[1] *Supra,* 85.

[2] Kirkham *vs.* Painton, *Bill of Complaint,* G.-F., 224.

[3] *Ibid.*

[4] The bond including the terms of these Articles proves his contention false. See *infra,* 92[2].

[5] Kirkham *vs.* Painton, *The Joint and Several Answers of Heminges and Burbage,* G.-F., 234–39. Supported by Painton's *Answer,* G.-F., 230–32; Evans's *Answer,* G.-F., 243; and *Decision of the Court,* G.-F., 250.

[6] If the lease had been assigned in trust as claimed, it would have required Burbage's knowledge and consent in order to be legal. But Burbage knew of no such transfer. (See reference, *u. s.,* note [5]). The decision of the court (*u. s.* note [5]) settles it that there was no such assignment, by declaring, "yet neuertheles the said conveyance was never perfected and sealled." The assignment of lease and all property and goods by Evans was, as we have seen (*supra,* 85), solely to Hawkins.

[7] Since the building itself was but recently refitted, of course no such expenditure "about the premisses" was required. [Recently I have found documents giving the full extent of repairs in detail with their cost as 11 *l.* 2 *d,* paid 8 Dec. 1603, by Henry Evans alone. See documents in vol. III of complete work.] Burbage and Hemings show (*u. s.,* 89[5]; G.-F., 236) that no such sum as Kirkham claims was thus expended. They say that if any sum was spent, it was, as they think, for "playinge apparell & other implements & properties touchinge & concerninge the furnishinge & settinge forth of Players & Plays," and seem by their "if" to cast doubt upon outlay even for these. But as shown in later chapters (vol. I. of complete work), no sum was spent for apparel, &c., by the company until the reign of James I.

Kirkham is never reliable. His present claim (July 1, 1612) is 400 *l.* (G.-F., 224), but in a suit two months earlier (May 5, 1612) it is, for the same expenditure, "three hundred pounds at the leaste" (G.-F., 217*a*). His statements concerning "disbursements," taken with the rest of the history, make one feel there is something in what he says, though not as he would have the Court believe. In his official capacity as Yeoman of the Revels, he

It is sure that the Assignment was Oct. 21, 1601, and was made to Hawkins alone. Painton gives this date,[1] and Evans declares the conveyance, drawn solely to indemnify Hawkins, his surety on the 400 *l.* bond to Burbage, was made "long tyme before any communication had between this def[t] and Alexander Hawkins on the one partie, and the compl[t], Rastall, and Kendall on the other partie."[2]

This puts the Articles later than the Assignment. Evans himself dates them April 20, 1602.[3] Painton also declares the date of "certayn articles" was April 20, 1602.[4] But Painton mentions only one item contained, the acknowledgment of the absolute assignment to Hawkins, for that alone concerns him. Evans, however, says these Articles contained not only this item,[5] but were "the said Articles of Agreement[6] . . . mencioned in the said bill."[7] In the same document, he claims the operation of these Articles up to the termination of the company in 1608.[8] His statements here are simply an expanded (partly verbatim) copy from his Replication in a suit[9] two months earlier, in which both he[10] and Kirkham[11] agree the Articles in question (the date of

continued as formerly, during the remaining year of Elizabeth after the 1602 contract with Evans, to furnish the necessary supplies of apparel, &c.,—even to superabundance (*infra*, 99[2], 106[1]),—but at the Queen's expense. He seems to be claiming now (1612) personally what he had expended officially.

Of course by the terms of the lease (G.-F., 212 and 241) Evans was bound to keep the building in repair. Hence, when he took in Kirkham *et al.*, who were to share expenses and profits half-and-half with him, he exacted their share in this also. (*Ibid.* Also *infra*, 92[2].) Although Burbage and Hemings show (*u. s.*, G.-F., 234–39) this provision in their contract was not the basis of the 400 *l.* expenditure, it seems to be the only basis Kirkham could show the Court in the Articles for his fictitious claim. The Articles are not known to exist. But doubtless the coincident Obligation or 200 *l.* bond (G.-F., 211–12; 240–41; [and *infra*, 92[2]]) give this provision fully, as well as the gist of much else agreed to.

Kirkham's Bill in this suit was "absolutely dismissed" by the Court (G.-F., 251).—Which is a final commentary on the merits of his claim.

[1] Kirkham *vs.* Painton, Painton's *Answer*, G.-F., 230.

[2] *Idem*, Evans's *Answer*, G.-F., 244.

[3] *Idem*, 245.

[4] *Idem*, Painton's *Answer*, G.-F., 231.

[5] *Idem*, Evans's *Answer*, G.-F., 243*a*.

[6] *Idem*, 245*c*.

[7] *I. e.*, *Bill of Complaint* in Kirkham *vs.* Painton, to which he is answering.

[8] Kirkham *vs.* Painton, Evans's *Answer*, G.-F., 245–46.

[9] Evans *vs.* Kirkham (May 5, 1612), *Replication*, G.-F., 221–22.

[10] *Idem*, Evans's *Bill of Complaint*, G.-F., 211; and *Replication*, G.-F., 221.

[11] *Idem*, Kirkham's *Answer*, G.-F., 217.

which is not there mentioned) were the ones under which they began the copartnership.[1]

There was then but one set of Articles under which the company was operated till its termination in 1608, and these bore date of April 20, 1602. This is unequivocally settled by the identification of the Articles by both Kirkham and Evans in the earlier suit with those of the later suit; the declaration of both Evans and Painton as to the date; Evans's willingness to bring the Articles into court: and the fact that the Court had the Articles before him in rendering a decree against Kirkham's petition in the later suit.[2]

[Since writing the above, I have found two separate copies of the 200 *l.* bond, each under date of April 20, 1602; also one copy of the 50 *l.* bond under same date. Both were made on the same day as the Articles merely as security for fulfilment of the contract.

This settles the question of date.

These two bonds are valuable in many respects. The 50 *l.* bond is quoted and discussed later. The 200 *l.* bond is especially valuable as containing the terms of the Articles of Agreement. By these it is seen that the partners were to share the profits and expenses. But the only expenses provided for are rent and repairs. No mention is made of the chief items of expense,—as maintenance of the company, apparel, and furniture.[3] This is suggestive in itself and is corroborated in its significance by other

[1] In reading the forty pages of documents in these two suits, it is difficult to keep apart the Articles of Agreement and the 200 *l.* Obligation based on them. Hence I note here that the Articles were drawn up by Evans (G.-F. 245*b*) with date of April 20, 1602 (*ibid.*), and "concluded" or agreed to by all (G.-F., 211*b*, 216*a*). Kirkham and partners in their behalf drew up a 200 *l.* bond or "Obligation" (G.-F., 211*c*, 216*a*), which was signed by Evans and Hawkins as a guarantee to carry out the Articles. The two instruments were coincident. The Obligation seems to recite much of the Articles, and is given substantially twice (G.-F., 211–12; 240–41). [Also *infra*, 92[3].]

Another bond was given at the same time by Kirkham *et al.* to Evans for 50 *l.* But there is no danger of confusing it with the Articles. It is taken up in proper order under James I. [But *cf.* also *infra*, 102[2].]

[2] It would not seem necessary to give such elaborate proof were it not that F. G. Fleay, *op. cit.*, 132-33, 209, by his misdating has thrown events into confusion, and led later writers in the field into gross error. Also in reading the documents published in his work, one should first of all blot out the dates he has inserted.

[3] *Cf. infra*, 101–2, 113, 128–29, 178.

The theatre was in no way interfered with. The Queen's continued favor to the last and the constant popularity of the Children are shown in later pages.

CHAPTER VII

QUEEN ELIZABETH AT THE BLACKFRIARS

THE history of the Children of the Chapel at Blackfriars, with the influences under which they became a large factor in the literary and social life of London and the conditions that made them the source of widely ramifying influences from late Elizabeth to the Restoration, throws much of the stage and dramatic history of the period into a new perspective. This arises primarily out of the Queen's attitude.

From the fact that her Majesty's Children of the Chapel were used at Blackfriars to present plays, every student of the drama has for a long time felt she extended to them special favor. But just what part she had in their establishment and maintenance and what interest she took in their performances has been made possible for us to know only through a study of original records, plays, and other contemporary evidences. These I have attempted to assemble in the present work. Important testimony has already been adduced. But valuable records and other materials are yet to be examined in the following eight chapters.

The Queen's attendance at Blackfriars theatre Tuesday, December 29, 1601, has already been mentioned incidentally.[1] On that date Sir Dudley Carleton in a gossipy letter of Court-news to John Chamberlain wrote:

"The Q: dined this day priuatly at my Ld Chamberlains; I came euen now from the blackfriers where I saw her at the play wth all her candidae auditrices."[2]

[1] *Supra*, 26, 87.

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There are five pages of the original MS., gossipy, but nothing further on Blackfriars or Elizabeth's attendance there. The letter is dated at the close, "29 of deceb^r^ *1601*." On the back it is addressed "To my very louing frend John Chamberlain these at Knebworth."

documents that these were provided by the Queen.[1] and were not therefore matters of charge to be shared. Consequently they are not mentioned among the company's items of expense in either Articles or bond.

The Condition of the 200 *l.* bond as giving these significant terms of the Articles of Agreement on which the new management was established is here subjoined.[2]]

[1] *Infra*, 101–2, 106[1], 126–29, 148*f*.

[2] (Marks of abbreviation are translated into italics.) The suits in which this document is enrolled occurred under James I. Hence the date of the Obligation is given as "vicesimo die Aprilis Anno regni d*omina*e Elizabeth nup*er* Regin*a*e Angli*a*e quadragesimo quarto."

The Condic*i*on of this obligac*i*on is such That Whereas Richard Burbage of the p*ar*ishe of S[t] leonard[es] in Shorditch in the Countie of Mid*lesex* gent*leman* by his Jndenture of lease bearinge date the second day of September in the two and fortith yere of the raigne of our sou*er*aigne ladie Elizabeth the Queenes Ma[tie] that now is hath leased and to farme letten vnto the within bounden henrye Evans all that greate hall or Roome with the roomes ouer the same in the said indenture menc*i*oned scitu*a*te within the p*re*cincte of the blackfriers london to hold vnto the said henrye Evans his executors and Assignes from the feast of S[ct] Michaell Tharkangell next ensuinge after the date of the saide Jndenture vnto the ende and tearme of one and twentie yeares from thence next ensuinge fullie to be compleated and ended yealdinge and payinge therefore yearley duringe the saide terme vnto the said Richard Burbage his heires and Assignes fortie pound*es* of lawfull money of England att fowre feastes or tearmes in the yeare that is to saye att the feast*es* of the birth of our lord God thannunciac*i*on of the blessed virgin Marie the Nativitie of S[t] John Baptist & S[t] Michaell tharkangell by even and equall porc*i*ons to be payd if now the within named William Rastell Edward kirkham and Thomas kendall and eu*er*ie of them their and eu*er*ie of their executors administrators and Assignes shall or may from henceforthe duringe the continuance of the said lease have the ioynte vse occupac*i*on and p*ro*fytt together with the within bounden henrye Evans & Alexander hawkyns their executors Administrators and Assignes and euerye of them of and in the said greate hall or Roome and other the p*re*misses without the lett or trouble of the saide henrie and Alexander their executors Administrators and Assignes or any of them or of any other p*er*son or p*er*sons by their or any of their meanes or p*ro*curement they the saide William Edward and Thomas their executors administrators and Assignes or any of them payinge vnto the said henrie and Alexander their executors or Assignes or to some or one of them from henceforth yearlie duringe the continuance of the said lease the moyetie or one halfe of the saide yearlie rente att the fower vsuall ffeastes in the yeare or within one and twentie dayes next after euerye of the saide feast*es* by even porc*i*ons and also bearinge and payinge of the moytie of such Chardges as from tyme to tyme shalbe laide out or disbursed for in or aboute the repe*ra*c*i*ons of the p*re*misses by and accordinge to the purporte and true meanynge and limitac*i*ons of the said lease And alsoe p*er*mittynge and suffringe the saide henrie & Alexander their executors and Assignes and eu*er*ye of them to have ioynte vse occupac*i*on and

Another minor item affecting the management now becomes clear and at the same time has contributive value in showing that the Queen's Court of Star Chamber had aimed its judgment solely at Evans, in no way interfering with the theatre as such, but rather protecting it.

Evans was forced to "departe into the Countrye"[1] within a month after signing the Obligation and Articles. This compulsory departure shows a close connection with the Decree. Evans says he had to leave because of evidence given by his new partners.[2] Doubtless upon the Lord Chamberlain's investigation as to whether the Court's order was being obeyed or not, these men gave testimony of the new arrangement showing Evans retained at least half proprietary interest.

But by the Decree, Evans could not enjoy half the privileges from the Queen's Children any more than he could enjoy all. The theatre however was to be continued, but not by him. Hence Lord Hunsdon's peremptory order to "avoid and leave the same."

Open contempt of this order would have meant summary punishment. So Evans made another shift. Just as previously in anticipation of danger in the suit of Clifton he had put his property opportunely out of his hands to save it, so now to escape the penalty imposed and make it appear he was obeying absolutely, he turned over his share of the active management also to Hawkins, who was in fact, as the documents show, merely to act for him, and got himself safely out of London. How long he remained away does not affect the history of the company. His claim of losing 300 *l.* by his enforced absence is an undoubted fiction, as his son-in-laws seems fully to have guarded his interests.

profytt together with them the said William Edward and Thomas their executors Administrators and Assigns and eu*er*ie of them of and in the saide greate hall and p*re*misses without their or any of their lett*es* troubles and interrupc*i*ons That then the p*re*sent obligac*i*on to be voide and of none effect or els it to stand in full force and vertue.

For document *in extenso* from which this is taken, see complete work, vol. III.

[1] Evans *vs.* Kirkham, *Bill of Complaint*, G.-F., 212*c*–213*a*.

[2] "And the Compl[t] further for Replicacion saith that he was, by the def[t] and his said Associates vpon false informacion made to the late Lord Hunsdon, late Lord Chamberlain, against this Compl[t], comaunded by his Lo[p] to avoyd and leave the same, for fear of whose displeasure the Compl[t] was forced to leaue the Country, and lost in want of not looking to his proffitt there and Charge otherwise neere three hundred pounds," &c.—Evans *vs.* Kirkham, Evans's *Replication*, G.-F., 220*c*.

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CHAPTER VII

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This authoritative record associated with the rest of the present history has significance.[1] Those familiar with the voluminous letters of Dudley Carleton are aware that an unusual event at Court or concerning the Queen receives some dilation, while the customary or ordinary doings or mere news items, if mentioned at all, are passed with a sentence or two, as in the present five-page document, making his letters almost as gossipy and disconnected as the local column of an American country-newspaper.

When one examines this record from every possible standpoint, the conclusion becomes irresistible that the Queen at least occasionally attended the Blackfriars. Also, as this was only one in a series of such attendance, there is no reason to suppose it the last.

This conclusion harmonizes with items in other documents touching the conduct of the theatre, and insofar as it involves her attitude toward the Blackfriars, not only is supported by circumstances and declaration, but also itself adds support and clearness to others. Among other things, it becomes evident why the Blackfriars Children were not more than one season at Court,[2] although they were Elizabeth's own company, and enjoyed the most fashionable and aristocratic patronage of London.[3] It becomes clear also from this particular occasion of attendance after the filing of Clifton's Complaint,[4]—just a fortnight after,—that she was steadfast in her support of Blackfriars, and was willing in the face of opposition to proclaim by her presence her purpose of continued support.[5] Numerous other occurrences and conditions also grow clearer.

—But an analysis here would merely anticipate conclusions that come of themselves through examining other documents. So we may pass this record for the present, with noting the attendance also of the ladies of the Court and hazarding the supposition that the Lord Chamberlain, Lord Hunsdon, with whom

[1] I find that A. W. Ward, *History of English Dramatic Literature* (1899²), I, 445², notes the existence of this record, with a reference to the *Calendar of State Papers* (*u. s.*). But he gives no hint of its connection or significance, beyond the mere fact contained in the document itself that the Queen attended the Blackfriars theatre.

[2] *Infra*, 112, 115¹, 121–22¹, 157⁴.

[3] *Infra*, 112, 124, 128, 164–66, 176–77.

[4] *Supra*, 84⁴, 87.

[5] *Infra*, 159–61.

the Queen dined, the gate to whose mansion adjoined the south entrance to the theatre,[1] did himself the honor likewise to attend the same performance.

This is the only known record of Elizabeth's attending a theatre,[2] and is the first known instance of such attendance by any sovereign.[3]

[1] *Supra*, 26[8]–26[4].

[2] "Neither Elizabeth nor King James the First, nor Charles the First, I believe, ever went to the public theatre."—E. Malone, *Shakespeare Variorum* (ed. Boswell, 1821), III, 166.

Some one who has made painstaking marginal notes in the copy of the above volume of Malone in the Hof- und Stadts-Bibliothek, München, says against Elizabeth's name here, "She went, however, to the Blackfriars in Cynth. Revels." There are reasons to believe she did. Proof of it would be most gratifying. On the evidence of the play itself, the masque in *Cynthia's Revels* if not the whole play seems written in compliance with the Queen's requirements in the training and use of the Children. (*Infra*, 122[1]). But this does not prove she saw the play. On page 504 of the above volume, the signature "Dibdin" to a note would seem to indicate not an author quoted, but the author of the marginal comments.—But which "Dibdin"?

[3] It has hitherto been supposed, as Malone (*u. s.*), J. P. Collier, *op. cit.* (1831[1]), II, 64; (1879[2]), I, 489; F. G. Fleay, *op. cit.*, 313, and the rest, have taken it, that Queen Henrietta, wife of Charles I, was the first person of royalty to attend a theatre. She attended the private theatres of Blackfriars, Phoenix (Cockpit), and Salisbury Court. But this record shows Elizabeth in priority.

CHAPTER VIII

THE QUEEN'S MAINTENANCE OF THE CHILDREN AT BLACKFRIARS

THE next record touching the Queen's relations to Blackfriars is a single paragraph in Evans's *Answer* in the suit of Kirkham *vs.* Painton,[1] seemingly unimportant at first sight. It deals with one item arising out of the 1602 Articles and touches the conduct of the theatre both before and after. It reads thus:—

"And towching the Eight shillings weekely to be paid,[2] . . . this def^t saith that there was a bond of ffiftye powndes made by the said compl^t and his said partners condicioned for paiement of the said some of eight shillings weekely vnto this def^t because after the said agreements made, the compl^t and his said Partners would at their directions haue the dietting and ordering of the Boyes vsed about the plaies there, wch before the said Compl^t had, and for the wch he had weekely before that disbursed and allowed great Somes of monie."[3]

This looks like a trivial paragraph merely "towching the Eight shillings." No one has hitherto found it significant.[4]

But what is meant by *"the said Complainant"?*

For several months, before I had thoroughly worked the field, I was puzzled to understand this paragraph. I could make nothing of it except that it dealt with eight shillings to be paid for some unknown reason, and that there was an apparent clerical error in "the said Complainant" for "this defendant." It seemed

[1] *Supra*, 89[5].

[2] See the 50 *l.* bond for the payment of this amount weekly, *infra*, 102[3]. See also the paragraph (*infra*, 104[2]) in Kirkham's *Bill of Complaint*, to which Evans is here answering.

[3] Public Record Office, *Chancery Proceedings, James I, Bills and Answers*, K 5, No. 25 (Kirkham *vs.* Painton, *The Aunswere of Henrie Evans, gent'*, &c). My transcript of the paragraph from the original document as here printed differs only slightly (in the spelling) from the print of Mr. Greenstreet's transcript as it appears in F. G. Fleay, *A Chronicle History of the London Stage* (1890), 244*a*.

[4] *Cf. infra*, 104[4].

to make sense thus, for then it meant that Evans had made the outlay.—Which I erroneously then took to be the case.

But no one has a right to declare a document incorrect upon assumption. There must first be proof of error.

I examined the original document in the Public Record Office, and accepted it as it stood. Taken thus it meant that Kirkham, "the said Complainant," had made the disbursements and allowances weekly. But Kirkham had nothing to do with either the taking up of the Children or the personal management of the theatre prior to the 1602 Articles referred to. Moreover, no other document mentions him as having any connection with the Blackfriars Children prior to that date. I knew he was the Queen's Yeoman of the Revels, but I could not see how that had anything to do with the point.

With the discovery of new materials and a consideration of all evidences in every aspect, the field cleared. The Decree of the Court of Star Chamber showed that Evans had official papers, and the Clifton Complaint suggested the same. The Commission to Gyles and the practices under it, with the Queen's attendance at the theatre, were indubitable testimony of more than mere official countenance. The Diary of the Duke of Stettin, discussed in the next chapter, was clear-cut declaration. All the numerous evidences in fact, a summary of which is given later,[1] thrust upon me conclusions as incontrovertible as new. They were a harmonious unit in revealing an official conduct of the theatre hitherto unguessed.

Among other statements in the Diary of the Duke of Stettin is the one that the Queen furnished these Children for their theatrical performances with a "superabundance of rich apparel."[2] This helped explain the paragraph in question. All the Queen's theatrical apparel was in the care of the Yeoman of the Revels who, by virtue of the letters patent of his appointment, was independent of the Master of the Revels in administering his office.[3]

[1] *Infra*, 126–29.

[2] *Infra*, 106–7, 123[4]–24[2], 178–79[1].

[3] "Wee doe ordeyne constitute and make the same Edward Kirkham by theis presentes yeoman or keeper of our Vestures or apparrell of all and singuler our Maskes Revells and disguiseinges and alsoe of the apparrell and Trappers of all and singuler our horses ordeyned and appointed or hereafter to bee ordeyned and appointed for

It was he who had charge over expenditures in the "setting out" of plays at Court.[1] It was through him, then, that this "superabundance of rich apparel" was furnished the Blackfriars Children. And as the Queen maintained this division of the Children of the Chapel as actors, it was through him, from some account yet to be discovered, that the weekly expenditures were made.

"The said complainant," then, meant the Yeoman of the Revels, Edward Kirkham, who as the Queen's official had, prior to any personal connection with the management, "disbursed and allowed great Somes of monie" for "the dietting and ordering of the Boyes vsed about the plaies there."

Both the expenditures[2] and the furnishing of apparel[3] were official. The possibility of surreptitiousness by "confederacy" or "conspiracy" is precluded by the nature of the case. Clifton's charges of illegitimate conduct of the theatre under color of authority, with his implication in the word "others" by which he

our iustes and Turneys," &c. Also he is "to have and enioye one sufficient house or mansion as hereafter shalbe assigned vnto the said Edward Kirkham for the suer better and safe keeping of our said Vestures apparrell and Trappers," &c.—From the *Patent* creating Edward Kirkham Yeoman for life, dated 28 April, 28 Elizabeth (1586). Printed in *A Collection of Ancient Documents Respecting the Office of Master of the Revels,* &c. (ed. J. O. Halliwell, 1870. Only 11 copies printed. No. 11 in British Museum.)

[1] The respective duties of the Master and the Yeoman of the Revels are not exactly known. But an examination of the Revels Accounts indicates that the Yeoman of the Revels, agreeable with the Patent, had full charge over purchase and use of apparel required in Court entertainments, while the Master's duties related to the larger functions of providing appropriate entertainments, plays, masques, &c., and especially for the "rehersinge and choise makinge" of plays, interludes, and masques.—See *Extracts from the Accounts of the Revels at Court* (ed. P. Cunningham, *Shakesp. Soc. Pub.,* 1842), *passim.* Cunningham here gives only part of the accounts. See further the original documents, *u. i.,* 101[1].

[2] Expenditures for board and lodging of children-actors throughout the year are new to the close of Elizabeth's reign. But temporary board and lodging for several days at a time were given different sets of children during their rehearsals and on their journeyings to and from the place of acting, as shown by various items in the accounts relating to such. See for example under year 1573,

"Item for the diette*s* & Lodging of dyvers childrē at saint Jones whiles thay Learned theier p*artes* & Jestures meete for the Mask in wch ix of them did serve at Hampton Coo^{r}te .....xxxiij^{s} iiij^{d}." —*Extracts from the Accounts of the Revels at Court* (ed. P. Cunningham, *S. S. Pub.,* 1842), 73. Here the amount would indicate about ten days maintenance.

[3] *Infra,* 106–7, 178.

seems to mean at least the Yeoman of the Revels, have no basis in fact. It is not certain to what account these expenditures were charged. If they went through the Office of the Revels they passed under the signatures of Kirkham and the Master of the Revels, Ed. Tilney, thence to the Audit Office where they were allowed. Or if they passed through any other office or set of accounts, the amounts in any case had to be allowed in like manner by some official near the Queen.[1]

Such expenditure as also the furnishing of apparel and the fact of allowing the Children to act in her name, to say nothing of the grants to Gyles and Evans and the attendance of Queen and Court at the theatre, settles the conduct of the Blackfriars as being under the knowledge and sanction of Queen Elizabeth.

Additional proof of the official conduct of the theatre is contained in Clifton's own statement of its surreptitiousness, which is here added.[2]

Standing alone this would not be valuable testimony. But it is

[1] The discovery of the record containing these allowances would be a valuable contribution to Elizabethan-Jacobean stage-history. Among the records of the Office of the Revels preserved at the Public Record Office, from which Mr. P. Cunningham published merely *Extracts* (*u. s.*, 100[2]) and some of them incorrectly, are *Declared Accounts, Audit Office,* Bundle 2045–2046, years 1573–1670; and *Declared Accounts of the Pipe Office,* Roll 2005, years 1603–38. I have gone through these with hope of some evidence. But in both sets of accounts the records of Oct. 31, 1588—Oct. 31, 1603 are wanting. There are numerous other gaps in the records. I have likewise examined the *Accounts of the Exchequer* and the Queen's *Household Accounts* without results.

The working out of the vast field of the Revels I have been glad to leave to a fellow-researcher, Professor A. Feuillerat of the University of Rennes, France, who for some years has been collecting all records and documents of the Office of the Revels in this period for publication. Prof. Feuillerat tells me he has found no account among these records that might cover such expenses as were incurred in maintaining the Children of the Chapel at Blackfriars. But there are other classes of accounts yet to be searched.

[2] "But soe yt is, moste excellent Soveraigne, that the said Nathaniell Gyles, confederating himself wth one James Robinson, Henry Evans, & others yet vnto your ma^{ties} said subiecte vnknowne howe [= who], by cullour of your ma^{ties} said letters patents & the trust by your highnes therby to him the said Nathaniell Gyles committed, endevouring, conspiring & complotting howe to oppresse diuers of your ma^{ties} humble & faythfull subiects, & therby to make vnto themselves an vnlawfull gayne and benefitt, they the said confederates devysed, conspired & concluded, for theire owne corrupte gayne and lucre, to errecte, sett vpp, furnish and maynteyne a play house or place in the Blackefryers."—Clifton's *Complaint,* G.-F., 127.

in harmony with all other evidences. Clifton says here that under color of the Commission to Gyles the theatre was set up, furnished, and maintained. With the malignity pared away, this can mean but one thing,—that the establishment and furnishing of the theatre and the maintenance of the Children taken there was under official sanction.

Other declarations in Clifton's Complaint are cited elsewhere[1] as showing the unwitting admission of the same fact.

Kirkham's intimate and official connection with the Blackfriars theatre prior to 1602 explains why after the Star Chamber Decree he and associates, having apparently secured concessions to themselves, came to Evans and "ernestly labored wth and entreated" him "that he . . . would suffer them to have and enioye some part of the demised premises wherevppon it was agreed and concluded."[2]

The 50 *l.* bond referred to in Evans's paragraph was an essential part of this "agreement and conclusion" as a guarantee for the payment of the "eight shillings." The "eight shillings" provision is important here not for itself, but insofar as it shows the "ordering" of the boys after the 1602 Articles. This comes out more clearly in Evans's paragraph than in the bond itself, which is here inserted.[3]

[1] *Supra,* 79–81; *infra,* 126.

[2] See *supra,* 88[1].

[3] (The more difficult abbreviations to put into type are expanded into italics.) The suit in which this document is enrolled occurred under James I. Hence the date is given as "vicesimo die Aprilis Anno regni d*omin*ae Elizabeth nup*er* Reginae Angliae quadragesimo quarto,"—the day on which the Articles and the 200 *l.* bond (*supra,* 88–92) were signed.

The Condicion of this obligacion ys suche That yf the within bounden Will*ia*m Rastell Edwarde Kirkham and Thomas Kendall or any of them theire or any of theire executors administrators or assignes everye weeke weekly on Saturdaye duringe the space of fifteene yeres next ensuinge the date within written when & soe often as anye enterludes plaies or showes shalbe playde vsed showed or published in the greate hall and other the Roomes scituat in the Blackfriers london or any parte thereof mencioned to be demysed by one Richard Burbage gent*leman* to the within named Henry Evans in and by one Indenture of lease bearinge date the second daye of September in the twoe & fortith yere of the raigne of our Sou*er*eigne ladye Elizabeth the Queenes Maiestie that nowe ys or els where by the children or any called by the name of the children of the queenes Maieste*s* Chappell or by any other children which by the consent of the sayde Will*ia*m Edward Thomas Henrie and one Alexander Hawkins gent*leman* theire executors or Administrators or any three of them wherof the

The bond is peculiar in that it does not state why the sum of eight shillings weekly is to be paid. The fact that the consideration is left out may not be highly significant. But may it be because there was the sense of the need of noncommittal on a vital point in this circumvention of the Star Chamber order?

So long as Evans conducted the theatre alone the problem was simple. He and his family lived in apartments or chambers there, and the Boys were boarded and lodged by him, allowances therefor being made through the Yeoman of the Revels, as above.[1] But in the new arrangement under the 1602 Articles, Evans, although still retaining the lease and maintaining chief control, did not dare be known in the management. Hence special provision had to be made for this feature. The Boys were still kept at Blackfriars at the Queen's charge, but under the "direction" of the new partners. So Evans was allowed as a part of the agreement eight shillings a week, presumably for stewardship over the Boys, rehearsals, and other duties of theatrical management.[2]

saide Henrie or Alexander theire Executors or Administrators to be one shalbe dyetted kepte or retayned for the exercize of the saide enterludes or playes doe and shall well & trewlie paye or cause to be paide vnto the saide Henrie Evans his Executors or assignes att or in the saide greate hall the somme of eighte shillinges of lawfull money of England The first payment thereof to begynne and to be made on Saturdaye beinge the fower & twenteth daye next commynge of this instant Moneth of Aprill within written That then this present obligacion to be voide & of none effect Or els yt to stande in full force and vertue.—For document *in extenso* from which this is taken, see complete work, vol. III.

[1] *Supra*, 40–41, 71–74, 99–100.

[2] This amounts in present money to approximately three or four pounds weekly. It is nearly twice as large a salary as Kirkham was allowed by the Queen as Yeoman of the Revels. He was to receive but "Sixpence by the Day," besides house-rent and perquisites of his office.—See Patent to him 28 April, 28 Elizabeth, in *op. cit., u. s.*, 99[8]. Also, in the same publication by Halliwell, pp. 2–3, see Patent to "Edmundo Tilney" as Master of the Revels for life from 24 July, 21 Elizabeth [1579], at a salary of 10 *l.* per annum. Of course he too, as we know from other sources, had house-rent and the perquisites of his office. But the actual cash salary to him was less than to Evans in the present case.

A still more suggestive contemporary item on salary may here be appended. In 1610 one John Fletcher was sued by the brewery firm of Rolfe & Thurgood for breach of contract. Fletcher was hired as "clerk of the drays," his duties being that of solicitor, collector, and general overseer of their beer-product. The point of interest here is that his contract provides that he shall be paid "the some of eight shillinges of lawfull money of England every Saturday weekely during the tyme of his service for and in respect of his sallarie or wages." —Public Record Office, *Court of King's Bench*, Hilary, 8 James I, membrane mccii.

Kirkham as Yeoman of the Revels would of course and did continue[1] to make disbursements and allowances "weekly," not to Evans, but to himself and partners who in turn were to pay Evans as a private not an official arrangement. For this payment of eight shillings they gave Evans the 50 *l.* bond just quoted.[2] How long they kept up the payment, and what came of the bond will be noticed later.[3]

This brief paragraph by Evans, treated in the present chapter, insofar as it shows the official conduct of the theatre, is one of the most important parts of all the eleven documents in the two Chancery suits brought to light by Mr. Greenstreet.[4]

Five months after the new arrangements in management the Children of the Chapel at Blackfriars were still acting with remarkable popularity, and were still being abundantly provided for by the Queen. Not only this is made clear from the record next to be examined but also how extensive the Queen's requirements were in the matter of their training and how the new management was carrying out her provisions.

[1] *Cf. infra,* 106–7, 123–24, 178–79, 184.

[2] The paragraph in Kirkham's *Bill of Complaint,* to which Evans's "eight shillings" paragraph is a reply, becomes clear in the present connection and may here be quoted:—

"And for further consideracion of said agreem[t] [1602] the said Evans, his executors and assignes, was weekly to receive of your said orator, the said Rastall and Kendall, and the survivour of them, and of the executors of the survivors of them, the somme of eight shillinges weekely duringe the saide terme, the which somme was paid to the said Evans accordingly [*cf. infra,* 104[3]] by your said orator, the said Rastall or Kendall, or one of them; and likwise for the considerac[ion] of 52 *l.* X. *s.* paid to the said Evans by the said Hawkins" [*cf. infra, ibid*].—G.-F., 225*a*.

[3] See under "Children of the Queen's Revels at Blackfriars, 1603–1608" in complete work, vol. I.

[4] The paragraph was omitted by the discoverer, Mr. James Greenstreet, from the running extracts in *The Athenaeum,* April 21, 1888, 509. A note by the editor says that the omissions are unimportant. But unfortunately some of the most important parts are in the omissions, this among them. F. G. Fleay, *op. cit.,* 210–51, printed all eleven documents *in extenso* from Mr. Greenstreet's transcripts.

CHAPTER IX

STATUS OF THE BLACKFRIARS CHILDREN.—THE QUEEN'S REQUIREMENTS

ONE of the most valuable documents yet discovered in revealing the relations of Queen Elizabeth to the setting up and maintenance of her Chapel Children as actors at Blackfriars, as well as illuminating their whole history, consists of two paragraphs in the Diary of Philipp Julius, Duke of Stettin-Pomerania, under date of September 18, 1602. The statements there, taken with the documents and evidences offered in other chapters, change all previous conceptions not only of this company and the Blackfriars theatre, but also of the relations of the children-companies under Elizabeth and James to the dramatic and theatrical history of the times.

A word therefore seems necessary on the value of the present record as evidence. Minor but essential details I subjoin in a note.[1] Other considerations throwing light upon the present history follow the quoted record.

[1] Philip Julius, Duke of Stettin-Pomerania, Prussia, in his eighteenth year (1602) was sent on a grand tour of the chief states of Europe for the purpose of completing his education, shaping his character, and preparing him for the duties of government in his own country. One of the important members of his retinue was Frederic Gerschow, former tutor to the Duke, and later (1605–35) Professor of Law at the University of Greifswald. In accordance with the Duke's command to write down accurately, day by day, everything they saw or heard on the journey, Gerschow kept a careful diary from the day of departure, Feb. 1, 1602, to the day of return, under the heading:—

Der Durchlauchtigsten Herrn Philippi Gulii Herzogen zu Stettin, Pommern, etc., Reise durch Deutschland, Engelland, und Italien, 1602.

The MS. of this Diary is now in the library of 'Count von der Osten of Plathe, Pomerania, and has never yet been fully published. Only a part of it is the original MS., according to the doubtful statement of the recent publishers. In 1892, Dr. Gottfried von Bülow, Superintendent of the Royal Archives in Stettin, assisted by Mr. Wilfred Powell, English Consul in Stettin, published in *Transactions of the Royal Historical Society* (New Series, 1892), VI, 4–67, all that part of the Diary pertaining to the journey in England. They give also an English translation page for page with the German text.

The original record runs as follows:[1]

"18. [Sept., Samstag, 1602] . . . Von dannen [*i. e.*, von einer Kunstkammer] sind wir auf die Kinder-comoediam gangen, welche im Argument iudiciret eine castam viduam, war eine historia einer königlichen Wittwe aus Engellandt. Es hat aber mit dieser Kinder-comoedia die Gelegenheit: die Königin hält viel junger Knaben, die sich der Singekunst mit Ernst befleissigen müssen und auf allen Instrumenten lernen, auch dabenebenst studieren. Diese Knaben haben ihre besondere praeceptores in allen Künsten, insonderheit sehr gute musicos.

Damit sie nun höfliche Sitten anwenden, ist ihnen aufgelegt, wöchentlich eine comoedia zu agiren, wozu ihnen denn die Königin ein sonderlich theatrum erbauet und mit köstlichen Kleidern zum Ueberfluss versorget hat. Wer solcher Action zusehen will,

From this portion of the Diary we learn that the Duke and retinue landed at Dover Friday, Sept. 10, 1602, and reached London on the 12th where they remained eight days. They spent the next two weeks in the country, including visits to Cambridge and Oxford, and finally sailed from Dover for Calais Oct. 3 on a Man of War specially provided by Queen Elizabeth.

During this three-weeks visit in England, they met the leading officials, statesmen, and scholars, and had every facility for learning facts recorded. Friday, Sept. 17, they dined with the Lord Mayor of London. On the same day in the afternoon they were entertained at the Royal Palace, Whitehall, though the Queen was absent, and were shown into the privacies of her Majesty,—her library, bedroom, prayer-book written in her own hand, &c., &c. Those who entertained them, though not named, must have been officials close to the Queen.

On the following day, Saturday, Sept. 18, they went to the Children's theatre at Blackfriars, and Gerschow wrote down the two paragraphs concerning it.

[1] From *Transactions of the Royal Historical Society* (New Series, 1892), VI, 26, 28.

The editors publish an English translation on parallel pages. But as they certainly missed the meaning in places, I offer the following:—

18 [Sept., Saturday, 1602] . . . From there [*i. e.*, from an Art-museum] we went to the play at the Children's Theatre, which in its plot deals with a chaste widow. It was the story of a royal widow of England.

—But with reference to this Children's Theatre this is the state of affairs: The Queen maintains a number of young boys who are required to devote themselves earnestly to the art of singing, and to learn to perform on various sorts of musical instruments, also at the same time to carry on their studies. These boys have their special preceptors in all the various arts, and in particular excellent instructors in music.

Now, in order that they may practice courtly manners, it is required of them to act a play every week, for which purpose indeed the Queen has established for them a special theatre and has provided them with a superabundance of rich apparel.

muss so gut als unserer Münze acht sundische Schillinge geben, und findet sich doch stets viel Volks auch viele ehrbare Frauens, weil nutze argumenta und viele schöne Lehren, als von andern berichtet, sollen tractiret werden; alle bey Lichte agiret, welches ein gross Ansehen macht. Eine ganze Stunde vorher höret man eine köstliche musicam instrumentalem von Orgeln, Lauten, Pandoren, Mandoren, Geigen und Pfeiffen, wie denn damahlen ein Knabe cum voce tremula in einer Basgeigen so lieblich gesungen, dass wo es die Nonnen zu Mailand ihnen nicht vorgethan, wir seines Gleichen auf der Reise nicht gehöret hatten."

This document is here given for the first time in its relation to the Children of the Chapel at Blackfriars,[1] and is as new in its significance to dramatic and stage history as if it had never before been printed. All details so fit into the history of the Children of the Chapel at Blackfriars that any attempt at demonstrating the identity would be gratuitous.[2]

Whoever wishes to be a spectator at one of their performances must pay as much as eight shillings of our [Pomeranian] coinage [*ca.* 12 *d.*]. And yet there is always present a large audience, including many respectable women, because entertaining plot-developments and many excellent teachings, as we were informed by others, are expected to be presented.

All their performances are acted by candle-light, which produces a fine spectacular effect.

For a whole hour preceding the play one listens to a delightful musical entertainment on organs, lutes, pandorins, mandolins, violins and flutes, as on the present occasion, indeed, when a boy *cum voce tremula* sang so charmingly to the accompaniment of a bass-viol that unless possibly the nuns at Milan may have excelled him, we had not heard his equal on our journey.

[1] Dr. A. W. Ward, *History of English Dramatic Literature* (1899²), I, 453, discussing the impressment of children for the choir of St. Paul's by royal warrant of 1585 (*cf. supra,* 67²), subjoins a translation of this document. While admitting he anticipates the date rather too much, he nevertheless holds the "curious passage" to be illustrative of the Paul's plays of 1585!! But Dr. Ward makes no special claim to a knowledge of stage-history, depending very frankly in such matters mainly upon the Rev. Mr. Fleay, except where, as here, Fleay has not written. Had he given the subject personal investigation, he would have seen that this Diary has nothing to do with Paul's even in 1602, much less seventeen years earlier.

[2] Numerous commentators and reviewers have seen that this record meant the Queen's Children, for the document says thus much. But no one of them has recognized that it meant the famous organization of the Children of the Chapel at Blackfriars. No analysis of its historical relations has hitherto been made, and no statement of its significance exceeds a single sentence. The recognition and analysis of its value is confined to the adjectives, "cu-

Much of the document by its clear-cut authoritative declaration substantiates conditions already examined. A few items are found in no other record. These so harmonize with the entire history and so substantiate logical conclusions and are so supported by certain conditions that the authoritativeness of the record on the whole may be regarded as final.

Other considerations are significant, strongly suggesting conditions not declared outright in any document.

The Duke and his retinue visited the Blackfriars the next day after dining with the Lord Mayor and being entertained at the Queen's Palace at Whitehall. Gerschow wrote a brief history and description of this Children's theatre, while in the case of two plays seen at the public theatres he passes them with bare mention,—one, no doubt at the Globe, with two lines;[1] the other,

rious," "remarkable," "auffallend," "merkwürdig," and "wertvoll."

Herman Hager in *Englische Studien* (1893), XVIII, 315, reprints the English translation from *Transactions of the Royal Historical Society* (*u. s.*, 106[1]). After quoting from F. G. Fleay, *A Chronicle History of the London Stage* (1890), 125, 133, on the place of acting by the Children of the Chapel and by Paul's Boys, he concludes, "I cannot find any reference to a theatre specially built for such a company by the Queen."

Since its first appearance in the parallel German-English publication in *Transactions of the Royal Historical Society* (*u. s.*, 106[1]), the German has been printed again from the original MS. by Professor Binz, of the University of Basel, in *Beilage zur Allgemeinen Zeitung* (München, Aug. 23, 1902). Dr. Binz erred in giving this out "als ein ineditum." He prefaces his print of it by a single generalizing sentence, but gives no hint as to the contributive value of the document.

C. F. Meyer in an article *Englische Komödianten am Hofe Philipp Julius von Pommern-Wolgast*, published in *Jahrbuch der Deutschen Shakespeare-Gesellschaft* (1902), XXXVIII, 196–211, reprints the document but says nothing of its significance.

Edward Engle, *Shakespeare in Pommern*, in *National-Zeitung* (Berlin, Sept. 27, 1902), reviewing Meyers's article (*u. s.*), again prints the document. He regrets that the Duke of Stettin did not instead attend the Globe.—Which however he certainly did do. Besides recognizing it as "einen wertvollen Beitrag," Engle says no word on its value.

Numerous other publications have given the matter mention.

[1] "13 [Sept. 1602].—Den 13. ward eine comedia agirt, wie Stuhl-Weissenburg erstlich von den Türken hernacher von den Christen wiederum erobert."—From the *Diary* in *Transactions of the Royal Historical Society* (New Series, 1892), VI, 6.

As the visitors had all opportunity to inform themselves, and also saw the chief sights of London,—the Temple, Exchange, Tower, Westminster, St. Paul's, Whitehall, &c.,—there is reason to conclude that they visited, not the minor, but the chief theatres. The Globe and the Fortune were the two public theatres of chief importance in 1602. On the 14th, the company attended a play at the Fortune (*u. i.*, 109[1]).

the play of *Samson* at the Fortune, with a line and a half.[1] A bear- and bull-fight, of course at the Bear Garden, gets four lines.

With no other evidence than the comparative length of notices given to Blackfriars on the one side and the Globe, Fortune, and Bear Garden on the other, we should be justified in concluding the relative weight of impressions the visitors carried home with them. But the important evidence more than bearing out this conclusion is the action taken by the Duke in establishing a theatre at his own court shortly after returning to Germany.

In 1604 Duke Philip was declared of age, and took charge of the government of the dukedom of Pommern-Wolgast. Within two years we find a theatre of "etliche und zwantzig Engländer"[2] established and maintained at his court at heavy expense.[3]

It seems unlikely that this company traveled, as other English actors in Germany did. There is no evidence of it. Nor do we

It is hardly likely that they visited the same theatre twice. They were doing the sights. There is no known case of repetition on the whole journey. So I take it as practically certain that this notice of their first visit to a theatre refers to the more famous Globe. If the play they saw could be identified, that would probably make the conclusion final.

[1] "14 [Sept. 1602]. — Auf den Nachmittag ward eine tragica comoedia vom Samsone und dem halben Stamm Benjamin agirt."—*Idem*, VI, 10.

The play of *Sampson* was then new. It is identified by the following:—

> "Lent vnto Samwell Rowley & edwarde Jewbe to paye for the Boocke of Samson the 29 of Julye 1602 the some of...vi[li]"

—Henslowe's *Diary* (ed. W. W. Greg, 1904), 169.

This play was never published.

"Sampson. Play, by Edward Jubye, (assisted by Samuel Rowley). Acted in 1602. N. P."—D. E. Baker, *Biographia Dramatica* (1812), II, 232.

Jewby belonged to the company playing at the Fortune, in which Henslowe was interested.

It is therefore established that the visitors attended the Fortune Sept. 14, 1602.

[2] See full notice in *Hausbuch des Herrn Joachim von Wedel auf Krempzow Schloss und Blumberg Erbgesessen*, first published by J. von Bohlen Bohlendorf in *Die Bibliothek des Litterarischen Vereins in Stuttgart* (1882), CLXI, 535. Quoted by C. F. Meyer in *Shakespeare-Jahrbuch* (1902), XXXVIII, 199.

[3] The establishment of the theatre, particularly the purpose on a festival court occasion to act in the church at Loitz, the home of the Duke's mother, roused the Court Preacher, Gregorius Hagius, to strenuous opposition. Of seven letters written by Hagius to the Duke and his mother between the 25 and 28 of August, 1606, three are preserved. They are published in *Shakespeare-Jahrbuch* (1902), XXXVIII, 200–207, by C. F. Meyer, and make a contribution more valuable, I think, than even Herr Meyer believed.

know how long it was maintained. But judging from the information at hand, it seems different from any other English troop in Germany, as a brief notice may suffice to show.[1]

The first English company of actors came to Germany under Robert Browne[2] in 1592. This organization developed by segregations and accretions into other companies.

In 1594 one of these player-troops received the patronage of Landgraf Moritz von Hessen-Cassel. Another, possibly about the same time, was patronized by Herzog Heinrich Julius von Braunschweig, who himself through influence of English actors was stirred to write ten dramas. In 1604 another company was patronized by Markgraf Christian von Brandenburg. These companies for several years and their offsprings for three-quarters of a century wandered over Germany presenting English plays or plays modeled after them, on the market square, in the town hall or other temporary place, and laid the foundations for the modern German theatre and drama.[3]

Conclusions on the English actors in Germany in the paragraphs here and later under the *Children of the Queen's Revels at* [illegible] are based upon an examination of the original documents as published in the following: [illegible]

[illegible] *Litteratur*. Neue Folge. Berlin. [illegible] Könneke [illegible] Trautmann [illegible] Emil Herz, *Englische Schauspieler und Englisches Schauspiel zur Zeit Shakespeares in Deutschland*. [illegible] Bonn, [illegible]

[illegible] Browne, Kingman, Jones, and Reeve [illegible] the beginnings of the modern German theatre [illegible] the Children of the Queen's Revels at [illegible] they are [illegible] [illegible]

[illegible]

The patronage of the companies named was modeled after the patronage extended to companies in England by the nobility under Elizabeth. Indeed, the patents by Landgraf Moritz to Brown and Kingman[1] read like English commissions adapted to German conditions. In a word, then, these traveling troops of English actors in Germany were established on the general plan of the patronage extended to the companies playing in the London public theatres. These public-theatre companies of this period were composed of actors. There was among them only an occasional dancer, and a rarer musician.

On the other hand, the company set up at the court of the Duke of Stettin, composed of actors, musicians, and dancers, and apparently not traveling about like the other English-German troops, but remaining at the court, not patronized moreover merely by a protecting commission but maintained at court as a charge on the ducal exchequer, seems modeled more after the private establishment of Blackfriars. Whether the Duke brought the troop directly from London, as seems not unlikely from Hagius's calling them "die von E. F. G. bestellte Comedianten,"[2] or whether he took up with actors, musicians, and dancers already on the continent, a point of difference from the other instances is that he intended them for and, as Hagius's letters show, used them for the pleasure and entertainment of his court and friends. It looks like the case of a small prince overdoing great royalty,—such as those numerous, almost universal, European exaggerated imitations in dress, language, and customs inspired half a century later by the dazzling court of Louis XIV.

I think Herr Meyer quite right, so far as he goes, in saying that the Duke acquired while in London a special fondness for the English theatre.[3] But from the chief theatrical interest of the Duke as shown by the Diary and from the kind of company

[1] Published by Könnecke in *Zeitschrift für Vergleichende Litteraturgeschichte und Renaissance Litteratur* (Neue Folge. Berlin.), I.

[2] See letter published by C. F. Meyer in *Shakespeare-Jahrbuch* (1902), XXXVIII, 200, with Meyers's view, 201.

[3] Zur Zeit dieses Londoner Aufenthalts geschah es denn wohl auch, dass der Herzog eine lebhafte Vorliebe für das englische Theatre fasste, die ihn dann späterhin veranlasste, englische Komödianten und Musiker an seinen eignen Hof zu ziehen und mit grossem Kostenaufwand lange daselbst zu unterhalten.—C. F. Meyer, *Englische Komödianten am Hofe des Herzogs Philipp Julius von Pommern-Wol-*

he established as a result. It is clear that this fondness turns not upon the public theatres, but upon the Queen's establishment of the Children at Blackfriars.

There are good grounds for concluding that Elizabeth intended the establishment of the Children of her Chapel as actors at Blackfriars not merely to give the Boys polish in manners, but also to pleasure herself and entertain the Court. Her own presence there in company with her court-ladies, the testimony from other sources that lords attended, and that by the gentleman took to the fashion while the better paying part of the audiences at the public theatres correspondingly dwindled, all indicate that this was at any rate the result, if not the original intention. I have already pointed out that this probably accounts for the Children's not being absent at Court from 1597 to 1603.

The high price of admission also indicates the aristocratic nature of the audience. If a shilling was, as it seems from the Diary, the lowest admission, the prices of the better seats, particularly in the lords' rooms, must have been considerable. In general, the admission fee so far as known seems to have been from two to three times as great as at any other theatre of the period.

The provision, noted by Gerschow, for the training of the Boys in singing, instrumental music, play-acting, and other arts, as well as in general culture, accords not merely with the material conditions and provisions of an ample instructorate, school-house, theatre, apparel, and financial expenditures. It accords most particularly with Elizabeth's passion for the drama and her special loves and liberal-mindedness toward all means that make for broader living,—characteristics which make her age the era of unprecedented progress, and for which the world of letters and arts has long done her honor.

The entertainment attended by the Duke of Stettin was, as the Diary lets us know, of the usual sort. From this it is made clear that the new management under Kirkham and associates was carrying out requirements to the Queen's wish. The chief training of the lads that could be practiced or exhibited on the stage is shown,—their skill in singing, instrumental music, acting, and dancing. It may be concluded that the other requirements were being complied with equally.

The stage directions of the Blackfriars plays during Elizabeth, though admittedly meager, are nevertheless corroborative of the Diary's statements on these heads. Still more, they show that these requirements were complied with from first to last, under Evans alone as well as under the Evans-Kirkham company, and that the plays were specially written to fit the company and meet these conditions. The evidence becomes more emphatic by comparing with the same company's plays under James. There we find comparatively little singing, dancing, and instrumental music.[1] It is of importance also that the combined evidence wholly disproves Clifton's charge before the Star Chamber to the effect that the boys taken up under the commission to Gyles could not sing and were not taught to sing,[2] but were abusively used solely

stage paid besides the admission fee an additional sixpence to a shilling for a stool there.

[1] See *The Children of the Queen's Revels at Blackfriars* in complete work, vol. I.

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[1] *Supra*, 73[4].

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[4] *The Case is Altered* (ca. Sept.–Oct., 1597) — [illegible] opens with [illegible]per singing. II, [illegible] Angelo sings. IV, ii opens with Juniper singing.

Cynthia's Revels (ca. April, 1600) — ed. Gifford-Cunningham [illegible] 151*a*. Echo sings. II, [illegible] 154. Prosaites sings. III, ii, p. 170. [illegible]sotus sings and dances. V, [illegible] 177 [illegible]edon sings. [illegible] 178. [illegible]morphus sings to the lyre. [illegible] opens with music accompanied. [illegible] sings. [illegible] end). [illegible] [illegible] in airs, then chorus after each air. [illegible] end [illegible] Mercury [illegible] [illegible]

[illegible]

daunce, faire Lords and Ladies, and after sing, so we will sing and daunce.

THE MEASURE

Now to the song and to this garland grace." [illegible]

Poetaster (ca. April, 1601) — ed. Gifford-Cunningham [illegible] 215. Crispinus sings. [illegible] Hermogenes sings, accompanied. V, [illegible] 238*b*. Crispinus plays and sings. IV, ii, [illegible] 244*a*. [illegible] sings. V, [illegible] 248*a*. Hermes sings.

The Gentleman Usher (ca. Sum. 1601) — ed. Shepherd, [illegible] 2*a*. [illegible] bearing Re[illegible] [illegible] [illegible] a new [illegible] [illegible] [illegible] 25. Enter Enchanter, with spirits singing. [illegible] Bassiolo [illegible] discerning their singing. [illegible] 76. [illegible]

[illegible]

But the songs in the plays are not the only nor the chief evidence that the requirements for the vocal training of the boys was specially emphasized and fully carried out. Under the mastership of Gyles the Children presented before her Majesty at Court "a showe wth musycke and speciall songes prepared for ye purpose on Twelfth day at night,"[1]—Monday, Feb. 6, 1600–[1]. This was the same year in which the Queen attended Blackfriars, and within two months after Clifton's son had been taken up,—the very time when Clifton declares to the Queen that the Children did not and could not sing and were not taught to sing.[2] *Hamlet* in the same year testifies to their singing, and suggests that they are maintained as actors only so long as they can sing, as if their singing were the basic consideration of their employment and their acting but consequential.[3] Within a year after these two testimonies and within six months after the Evans-Kirkham reorganization of the management consequent upon the Star Chamber Decree against Evans, the present Diary of the Duke of Stettin, September, 1602, says this provision is carried out and shows by an example how extensive the training must have been. So charmingly sang one of the Boys *cum voce tremula* that unless

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The Malcontent (spring, 1603).—I, i, A song. II, iii, A song within. While the song is singing, enter Mendoza, &c. III, ii, Song by second and third pages. V, ii, Enter from opposite sides Malevole and Maquerelle singing. [On the omission of the music elements of this play as originally presented at Blackfriars, see *infra,* 116[2]–17.]

[1] See complete work, vol. II, *Plays at Court.* Also *cf.* 112[1], 121[3]–22[1], 157[4].

[2] *Supra,* 80[1], 113[2]–14.

[3] *Infra,* 180.

the nuns at Milan might be compared with him, the travelers felt they had not heard his equal in Germany, Italy, or France.

Training in instrumental music[1] was also extensive, requiring an acquaintance with the principal instruments of the time,—organ, lute, bandora, mandolin, violin, bass-viol, cello, flute, and cornet.

But the plays give necessarily slight indications of the music. *The Malcontent,* for example, as it has reached us, is pretty well shorn of this attraction, as the *Induction* declares.[2] The delight-

[1] *The Case is Altered* (ca. Sept.—Oct., 1597).—I, i, "A flourish" precedes the opening. I, ii ends with "a tucket."

Cynthia's Revels (ca. April, 1600).—(ed. Gifford-Cunningham) IV, i, p. 178, Amorphus sings to the lyre. V, ii, p. 186b, Music. *Idem,* 187a, charge; flourish. *Idem,* 189, charge (twice); flourish (twice). *Idem,* 193b, charge; flourish. *Idem,* 194b, charge; flourish. V, iii opens with "Music accompanied. Hesperus sings." V, iii, p. 200a, Music. A dance by the two masques, &c. *Idem,* 200b, Music. Second dance. *Idem,* 201b, Music. Third dance.

Sir Giles Goosecap (ca. fall, 1600).—(ed. Bullen) I, iv, p. 21, Enter Clarence, Musicians. *Idem,* 22, [illegible] song to the viols. *Idem,* 23, [illegible] Musicians.

Poetaster (ca. April, 1601).—(ed. Gifford-Cunningham), II, i, p. 22 [illegible] Hermogenes sings accompa[illegible] [illegible] 236, Crispinus plays and sings. IV, ii, p. 243a, Music. [illegible] IV, ii, p. 243a, Mu[illegible] Hermogenes sings.

The Gentleman Usher (ca. [illegible] 1601).—(ed. Shepherd, 1873) [illegible] Music.

[illegible]

The Widow's Tears (Sept., 1602).—(ed. Shepherd, 1873), III, ii, p. 325b, Music. Two lines farther on, "Music. Hymen descends" &c. [See comment supra, 115, col. 1.]

The Dutch Courtesan (fall-wint., 1602).—(ed. 1633 and Bullen, 1887), I, ii, p. 213, Enter Franceschina with her lute; 219, she sings to her lute. II, i, Enter Freevill, pages with torches, and gentlemen with music. Then at l. 5, a serenade of music and song under Beatrice's window. V, i, l. 15 "Franc. [Cantat saltatque cum cithera."

The Malcontent (spring, 1603).—I, i, The best of out-of-tune music being heard, &c. I, iii, Music within. III, ii, Cornets like horns within. IV, i, Cornets sound within.—*Idem.*—"We will dance:—music.—We will dance." Aurelia [illegible] music five times in this scene. [illegible] the dance [illegible] interrupted [illegible] Cornets [illegible] flourish. [illegible] Peace! [illegible] The music [illegible] for the masque. *Idem.,* Cornets. Cornets. [illegible] Enter Mercury [illegible] music. *Idem.,* Cornets: [illegible] cornets, which playing [illegible] *Idem.,* The [illegible] first [illegible] dance. [illegible] Re-[illegible] played [illegible] 1603. [illegible]

ful concert of instruments and voices[1] preceding the play and lasting an hour was, as the Diary informs us, the customary prelude. It was no part of the play, and is not mentioned, therefore,

company, who cut out the music elements, in the main, because that company could not present them, as the following from the *Induction* spoken in 1604 from the Globe stage indicates:—

"*Sly.* What are your additions?

Burbage. Sooth, not greatly needful; only as your salad to your great feast, to entertain a little more time, and to abridge the not-received custom of music in our theatre."

[1] It is likely and seems as nearly certain as circumstantial evidence can render it that Blackfriars popularized the vocal-instrumental concert. A few years later (1609), special provision is made for concerts as well as for plays in the articles of agreement by the company at Whitefriars called Children of the King's Revels,—a company modeled after Blackfriars. (*cf. infra,* 121[2].)

If the activity of Blackfriars in produeing such concerts while carrying out the Queen's requirements and wishes did not cause a corresponding (and the first known) activity of musicians in collecting and publishing suitable songs and scores for such vocal and instrumental concerts, then it must be considered as at least remarkable that the two activities, each closely related to the other, sprang up independently and simultaneously.

The earliest known English books of songs with accompaniments on the chief musical instruments used at Blackfriars were published about 1600. Thomas Morley, one of the gentlemen of the Chapel Royal, published "The first book of Aires or little short Songes to sing and play to the lute with the bass viol, London, 1600." About the same time, John Dowland published "The first booke of Songes or Ayers of foure Parts with Tablature for the Lute." In 1600 he published a second book of "Songes and Aires" for "the lute or Orpherian, with the viol de gamba" (entered on Stationers' Register 15 July, 1600), in which he styles himself lutenist to the King of Denmark. His third work appeared in 1603 with the title, "Songs or Aires to sing to the lute, Orpharion, or Violls."

Philip Rosseter, lutenist, whom we later (1610 ff., complete work, vol. I) find an important figure in the history of the Children of the Queen's Revels at Whitefriars, published in 1601 "A Booke of Ayres set foorth to be song to the Lute, Orpherian, and base Violl" (entered on Stationers' Register 8 May, 1601). Another work by Rosseter was entered on the Stationers' Register 14 April, 1609, under title "A booke of Consortes to the treble lute, bandora, treble viall, base viall, the Citterne and the fflute."

The poet Samuel Daniel's brother, John Daniel,—whom we meet later (1615ff., complete work, vol. I) as the leader of that old-men's company practicing on the reputation of the children-companies as an asset under the name of The Children of her Majesty's Royal Chamber of Bristol,—published in 1606 a volume of "Songs for the Lute, Vial, and Voice, in folio."

—For *data* above, see Sir John Hawkins, *A General History of the Science and Practice of Music,* etc. (1776[1]; 1853[2]), I, 482*b;* II, 489*a,* 570*a,* 571*b.* Also, E. Arber, *A Transcript of the Registers of the Company of Stationers of London, 1554-1640* (1875-94), III.

These books of concert music for voice and instrument are not only the earliest of their kind, but also form a collection more numerous than the product in this branch at any later period of similar brevity. If they did not arise out of the nature and popularity of the Black-

know how long it was maintained. But judging from the information at hand, it seems different from any other English troop in Germany, as a brief notice may suffice to show.[1]

The first English company of actors came to Germany under Robert Brown[2] in 1592. This organization developed by segregations and accretions into other companies.

In 1594 one of these player-troops received the patronage of Landgraf Moritz von Hessen-Cassel. Another, possibly about the same time, was patronized by Herzog Heinrich Julius von Braunschweig, who himself through influence of English actors was stirred to write ten dramas. In 1604 another company was patronized by Markgraf Christian von Brandenburg. These companies for several years and their offsprings for three-quarters of a century wandered over Germany presenting English plays or plays modeled after them, on the market square, in the town hall, or other temporary place, and laid the foundations for the modern German theatre and drama.[3]

[1] Conclusions on the English actors in Germany in the paragraphs here, and later under the *Children of the Queen's Revels at Whitefriars,* are based upon an examination of the original documents as published in the following:—
—Albert Cohn, *Shakespeare in Germany* (1865).—Karl Goedeke, *Grundriss zur Geschichte der Deutschen Dichtung* (2 Auflage, 1886), II, 524–42 (Materials assembled in chronological order).—*Archiv für Litteraturgeschichte,* XIII–XV (Trautmann; Crüger).—*Jahrbuch der Deutschen Shakespeare Gesellschaft,* XVIII (Menzel); XIX (Meissner); XXI (Cohn); XXIII (Bolte); XXXVIII (Meyer).—E. Menzel, *Geschichte der Schauspielkunst in Frankfurt* (1882).—Johannes Meissner, *Die Englischen Komödianten zur Zeit Shakespeares in Oesterreich* (Diss. Wien, 1884).—W. Creizenach, *Die Schauspiele der Englischen Komödianten. Einleitung.* (J. Kürschner's *Deutsche National-Litteratur,* XXIII, 1889).—*Zeitschrift für Vergleichende Litteraturgeschichte und Renaissance Litteratur* (Neue Folge. Berlin.), I, (Könneke); VII, (Trautmann).—Emil Herz, *Englische Schauspiele und Englisches Schauspiel zur Zeit Shakespeares in Deutschland* (Teil I, Diss. Bonn, 1901. Vollständige Arbeit in Litzmann's *Theatergeschichtliche Forschungen,* Heft XVIII, 1903).

[2] As Brown, Kingman, Jones, and Reeve, who have much to do with these beginnings of the modern German theatre, were later active in London in establishing the Children of the Queen's Revels at Whitefriars (1610), they are noticed sufficiently in that connection. —See complete work, vols. I, II.

[3] See further in complete work, vol. I, on German imitations of "English comedians" after *ca.* 1660, when the Davenant-Killigrew theatrical monopoly of London throttled competition and aspiration in the art of acting in England, and so made the organization of additional English companies at home or abroad from that time on impossible.

The patronage of the companies named was modeled after the patronage extended to companies in England by the nobility under Elizabeth. Indeed, the patents by Landgraf Moritz to Brown and Kingman[1] read like English commissions adapted to German conditions. In a word, then, these traveling troops of English actors in Germany were established on the general plan of the patronage extended to the companies playing in the London public theatres. These public-theatre companies of this period were composed of actors. There was among them only an occasional dancer, and a rarer musician.

On the other hand, the company set up at the court of the Duke of Stettin, composed of actors, musicians, and dancers, and apparently not traveling about like the other English-German troops, but remaining at the court, not patronized moreover merely by a protecting commission but maintained at court as a charge on the ducal exchequer, seems modeled more after the private establishment of Blackfriars. Whether the Duke brought the troop directly from London, as seems not unlikely from Hagius's calling them "die von E. F. G. bestellte Comedianten,"[2] or whether he took up with actors, musicians, and dancers already on the continent, a point of difference from the other instances is that he intended them for and, as Hagius's letters show, used them for the pleasure and entertainment of his court and friends. It looks like the case of a small prince overdoing great royalty,—such as those numerous, almost universal, European exaggerated imitations in dress, language, and customs inspired half a century later by the dazzling court of Louis XIV.

I think Herr Meyer quite right, so far as he goes, in saying that the Duke acquired while in London a special fondness for the English theatre.[3] But from the chief theatrical interest of the Duke as shown by the Diary and from the kind of company

[1] Published by Könnecke in *Zeitschrift für Vergleichende Litteraturgeschichte und Renaissance Litteratur* (Neue Folge. Berlin.), I.

[2] See letter published by C. F. Meyer in *Shakespeare-Jahrbuch* (1902), XXXVIII, 200, with Meyers's view, 201.

[3] Zur Zeit dieses Londoner Aufenthalts geschah es denn wohl auch, dass der Herzog eine lebhafte Vorliebe für das englische Theatre fasste, die ihn dann späterhin veranlasste, englische Komödianten und Musiker an seinen eignen Hof zu ziehen und mit grossem Kostenaufwand lange daselbst zu unterhalten.—C. F. Meyer, *Englische Komödianten am Hofe des Herzogs Philipp Julius von Pommern-Wol-*

he established as a result, it is clear that this fondness turns not upon the public theatres, but upon the Queen's establishment of the Children at Blackfriars.

There are good grounds for concluding that Elizabeth intended the establishment of the Children of her Chapel as actors at Blackfriars not merely to give the Boys polish of manners, but also to pleasure herself and entertain the Court. Her own presence there in company with her court-ladies, the testimony from other sources that lords attended, and that my fine gentleman took up the fashion while the better paying part of the audiences at the public theatres correspondingly dwindled, all indicate that this was at any rate the result, if not the original intention. I have already pointed out that this probably accounts for the Children's not being oftener at Court from 1597 to 1603.[1]

The high price of admission also indicates the aristocratic nature of the audience. If a shilling was, as it seems from the Diary, the lowest admission, the prices of the choicer seats, particularly in the lords' rooms, must have been considerable. In general, the admission fee so far as known seems to have been from two to twelve times as great as at any other theatre of the period.[2]

gast, in *Jahrbuch der Deutschen Shakespeare Gesellschaft* (1902), XXXVIII, 198.

[1] *Supra,* 96[2].

[2] It seems remarkable that contemporary literature offers no statement of the price of admission at Blackfriars for the period in hand. No proper study of entrance fees to London theatres, however, has ever been made. Malone, *op. cit.,* III, 73ff., assembled numerous examples ranging over about three-quarters of a century. Collier, *op. cit.,* III, 146ff., reworked these, with a few additions and omissions. The conclusions of both Malone and Collier melt time and individual theatres into a single composite. But clearly the prices and conditions of, say, 1640, are not those of 1600, much less of 1576. Private theatres are all classed together as having simply higher prices than the public theatres. But they differed also in part among themselves. It is not a fruitful field, but such as it is it should be reworked for what it may yield, with regard to definite periods and conditions of each theatre considered.

Known examples allow the following tentative conclusions for 1597 to 1608. Admission to the yard and upper gallery of the public theatres was one penny. There were also two-penny galleries, or two-penny rooms, in the Globe, Fortune and others. So far as known, the best rooms there were a shilling. The price at Paul's was sixpence. There are no known records as to Whitefriars fees for the period. At Blackfriars the lowest price in 1602 was a shilling. But in 1607 under very different conditions during the reign of James I, it seems sixpence. The boxes and rooms were doubtless dear. Gallants who sat on the Blackfriars

The provision, noted by Gerschow, for the training of the Boys in singing, instrumental music, play-acting, and other arts, as well as in general culture, accords not merely with the material conditions and provisions of an ample instructorate, school-house, theatre, apparel, and financial expenditures. It accords most particularly with Elizabeth's passion for the drama and her special loves and liberal-mindedness toward all means that make for broader living,—characteristics which make her age the era of unprecedented progress, and for which the world of letters and arts has long done her honor.

The entertainment attended by the Duke of Stettin was, as the Diary lets us know, of the usual sort. From this it is made clear that the new management under Kirkham and associates was carrying out requirements to the Queen's wish. The chief training of the lads that could be practiced or exhibited on the stage is shown,—their skill in singing, instrumental music, acting, and dancing. It may be concluded that the other requirements were being complied with equally.

The stage directions of the Blackfriars plays during Elizabeth, though admittedly meager, are nevertheless corroborative of the Diary's statements on these heads. Still more, they show that these requirements were complied with from first to last, under Evans alone as well as under the Evans-Kirkham company, and that the plays were specially written to fit the company and meet these conditions. The evidence becomes more emphatic by comparing with the same company's plays under James. There we find comparatively little singing, dancing, and instrumental music.[1] It is of importance also that the combined evidence wholly disproves Clifton's charge before the Star Chamber to the effect that the boys taken up under the commission to Gyles could not sing and were not taught to sing,[2] but were abusively used solely

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Sir Giles Goosecap (*ca.* fall, 1600).—I, iv, a song to the Violls. II, i, Enter Winnifred and Anabell "with their sowing workes and sing." III, ii, "Sing good Horatio, while I sigh," &c. *Canto;* "Sing one stave more, my good Horatio." *Canto;* "Your third staunce sweet Horatio, and no more." *Canto.* V, [ii], "In form whereof first daunce, faire Lords and Ladies, and after sing, so we will sing and daunce.

THE MEASURE

Now to the song and do this garland grace." *Canto.*

Poetaster (*ca.* April, 1601).—(ed. Gifford-Cunningham), II, i, p. 221*b*, Crispinus sings. *Ibid.,* Hermogenes sings, accompanied. IV, i, p. 238*b*, Crispinus plays and sings. IV, iii, p. 243*a*, Albius sings. IV, iii, p. 243*a*, Hermes sings.

The Gentleman Usher (*ca.* Sum. 1601).—(ed. Shepherd, 1873), I, i, p. 82*a*, Lasso, hearing "Re, mi, fa, sol, la," says, "Oh they are practicing; good boys, well done." I, i, p. 82*b*, Enter Enchanter, with spirits singing. II, i, p. 87*a*, Bassiolo gives the boys directions concerning their singing. II, i, p. 87*b*, Broom-man, Rush-man, Broom-maid, Rush-maid, "with silver song" in a masque. II, i, p. 88*b*, Male Bug and Female Bug sing, in a masque. III, i opens with "the song." V, i, p. 105*a*, song.

Monsieur D'Olive (*ca.* Oct.—Dec., 1601).—No singing indicated.

May Day (*ca.* May, 1602).—(Ed. *idem*), I, i, preceded by "Chorus

But the songs in the plays are not the only nor the chief evidence that the requirements for the vocal training of the boys was specially emphasized and fully carried out. Under the mastership of Gyles the Children presented before her Majesty at Court "a showe wth musycke and speciall songes prepared for ye purpose on Twelfth day at night,"[1]—Monday, Feb. 6, 1600–[1]. This was the same year in which the Queen attended Blackfriars, and within two months after Clifton's son had been taken up,—the very time when Clifton declares to the Queen that the Children did not and could not sing and were not taught to sing.[2] *Hamlet* in the same year testifies to their singing, and suggests that they are maintained as actors only so long as they can sing, as if their singing were the basic consideration of their employment and their acting but consequential.[3] Within a year after these two testimonies and within six months after the Evans-Kirkham reorganization of the management consequent upon the Star Chamber Decree against Evans, the present Diary of the Duke of Stettin, September, 1602, says this provision is carried out and shows by an example how extensive the training must have been. So charmingly sang one of the Boys *cum voce tremula* that unless

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[1] See complete work, vol. II, *Plays at Court*. Also *cf.* 112[1], 121[2]–22[1], 157[4].

[2] *Supra*, 80[1], 113[2]–14.

[3] *Infra*, 180.

the nuns at Milan might be compared with him, the travelers felt they had not heard his equal in Germany, Italy, or France.

Training in instrumental music[1] was also extensive, requiring an acquaintance with the principal instruments of the time,—organ, lute, bandora, manolin, violin, bass-viol, 'cello, flute, and cornet.

But the plays give necessarily slight indications of the music. *The Malcontent,* for example, as it has reached us, is pretty well shorn of this attraction, as the *Induction* declares.[2] The delight-

[1] *The Case is Altered* (*ca.* Sept.—Oct., 1597).—I, i, "A flourish" precedes the opening. I, ii ends with "a tucket."

Cynthia's Revels (*ca.* April, 1600).—(ed. Gifford-Cunningham) IV, i, p. 178, Amorphus sings to the lyre. V, ii, p. 186*b*, Music. *Idem,* 187*a*, charge; flourish. *Idem,* 189, charge (twice); flourish (twice). *Idem,* 193*b*, charge; flourish. *Idem,* 194*b*, charge; flourish. V, iii opens with "Music accompanied. Hesperus sings." V, iii, p. 200*a*, Music. A dance by the two masques, &c. *Idem,* 200*b*, Music. Second dance. *Idem,* 201*b*, Music. Third dance.

Sir Giles Goosecap (*ca.* fall, 1600).—(ed. Bullen) I, iv, p. 21, Enter Clarence, Musicians. *Idem,* 22, A song to the Violls. *Idem,* 23, Exeunt Musicians.

Poetaster (*ca.* April, 1601).—(ed. Gifford-Cunningham), II, i, p. 221*b*, Hermogines sings accompanied. IV, i, p. 238*b*, Crispinus plays and sings. IV, iii, p. 243*a*, Music. Albius sings. IV, iii, p. 243*a*, Music. Hermes sings.

The Gentleman Usher (*ca.* sum. 1601).—(ed. Shepherd, 1873), II, i, p. 87*a*, Music.

Monsieur D'Olive (*ca.* Oct.—Dec., 1601.)—No music indicated.

May Day (*ca.* May, 1602).—(ed. Shepherd, 1873), III, iv, p. 295*b*, "Tapster, call us in some music." IV, i, p. 295*b*, Enter . . . &c., with music. *Quintiliano.*—"Strike up, scrapers." *Idem,* 296*a*, *Qu.*—"(strike up fiddlers)"; and farther on, "Farewell, scrapers," &c.

The Widow's Tears (Sept., 1602).—(ed. Shepherd, 1873), III, ii, p. 325*b*, Music. Two lines farther on, "Music. Hymen descends" &c. [See comment *supra,* 115, col. 1.]

The Dutch Courtezan (fall-wint., 1602).—(ed. 1633 and Bullen, 1887), I, ii, l. 213, Enter Franceschina with her lute; 219, she sings to her lute. II, i, Enter Freevill, pages with torches, and gentlemen with music. Then at l. 8, a serenade of music and song under Beatrice's window. V, i, l. 18 "[Franc.] Cantat saltatque cum cithera."

The Malcontent (spring, 1603).—I, i, The vilest of out-of-tune music being heard, &c. II, iii, Music within. III, ii, Cornets like horns within. IV, i, Cornets sound within.—*Amelia.*—"We will dance:—music!—we will dance." Amelia calls for "music" five times in this scene, for the dance of the interrupted masque. IV, i, Cornets flourish. V, ii, " . . . Peace! cornets!" V, iii, "The music!" *i. e.,* for the masque. *Ibid.,* "cornets, cornets!" V, iii, Enter Mercury with loud music. *Ibid.,* "Cornets: the song to the cornets, which playing, the mask enters." *Ibid.,* "the cornets sound the measure" (first dance). Repeated, in second dance. *Ibid.,* "Cornets, a flourish." Repeated at close of play.

[2] *The Malcontent* was first played at Blackfriars in the spring of 1603. During the unsettled state of affairs of that year (*cf. Children of the Queen's Revels at Blackfriars,* 1603–1608, in complete work, vol. I) it fell into the hands of the Burbage

ful concert of instruments and voices[1] preceding the play and lasting an hour was, as the Diary informs us, the customary prelude. It was no part of the play, and is not mentioned, therefore,

company, who cut out the music elements, in the main, because that company could not present them, as the following from the *Induction* spoken in 1604 from the Globe stage indicates:—

"*Sly.* What are your additions?

Burbage. Sooth, not greatly needful; only as your salad to your great feast, to entertain a little more time, and to abridge the not-received custom of music in our theatre."

[1] It is likely and seems as nearly certain as circumstantial evidence can render it that Blackfriars popularized the vocal-instrumental concert. A few years later (1609), special provision is made for concerts as well as for plays in the articles of agreement by the company at Whitefriars called Children of the King's Revels,—a company modeled after Blackfriars. (*cf. infra,* 121[2].)

If the activity of Blackfriars in produeing such concerts while carrying out the Queen's requirements and wishes did not cause a corresponding (and the first known) activity of musicians in collecting and publishing suitable songs and scores for such vocal and instrumental concerts, then it must be considered as at least remarkable that the two activities, each closely related to the other, sprang up independently and simultaneously.

The earliest known English books of songs with accompaniments on the chief musical instruments used at Blackfriars were published about 1600. Thomas Morley, one of the gentlemen of the Chapel Royal, published "The first book of Aires or little short Songes to sing and play to the lute with the bass viol, London, 1600." About the same time, John Dowland published "The first booke of Songes or Ayers of foure Parts with Tablature for the Lute." In 1600 he published a second book of "Songes and Aires" for "the lute or Orpherian, with the viol de gamba" (entered on Stationers' Register 15 July, 1600), in which he styles himself lutenist to the King of Denmark. His third work appeared in 1603 with the title, "Songs or Aires to sing to the lute, Orpharion, or Violls."

Philip Rosseter, lutenist, whom we later (1610 ff., complete work, vol. I) find an important figure in the history of the Children of the Queen's Revels at Whitefriars, published in 1601 "A Booke of Ayres set foorth to be song to the Lute, Orpherian, and base Violl" (entered on Stationers' Register 8 May, 1601). Another work by Rosseter was entered on the Stationers' Register 14 April, 1609, under title "A booke of Consortes to the treble lute, bandora, treble viall, base viall, the Citterne and the fflute."

The poet Samuel Daniel's brother, John Daniel,—whom we meet later (1615ff., complete work, vol. I) as the leader of that old-men's company practicing on the reputation of the children-companies as an asset under the name of The Children of her Majesty's Royal Chamber of Bristol,—published in 1606 a volume of "Songs for the Lute, Vial, and Voice, in folio."

—For *data* above, see Sir John Hawkins, *A General History of the Science and Practice of Music,* etc. (1776[1]; 1853[2]), I, 482*b;* II, 489*a,* 570*a,* 571*b.* Also, E. Arber, *A Transcript of the Registers of the Company of Stationers of London, 1554-1640* (1875–94), III.

These books of concert music for voice and instrument are not only the earliest of their kind, but also form a collection more numerous than the product in this branch at any later period of similar brevity. If they did not arise out of the nature and popularity of the Black-

in either Chapman's *The Widow's Tears*,—the "chaste widow" which the Duke of Stettin saw,[1]— nor in any other play.

It is quite clear that the musical training of the Children amply balanced the dramatic.

The notable thing about the dancing[2] is that it differs from the public theatre jig and Morris. It is treated more as an art and seems modeled on the masques long practiced at Court. This is true especially of Jonson's *Cynthia's Revels* and four of Chapman's plays, *Sir Giles Goosecap, The Gentleman Usher, May Day, The Widow's Tears;* also Marston's *The Dutch Courtezan* and *The Malcontent.*

The ancient custom of masques at Court[3] was carried out by Elizabeth and her predecessors with elaborate detail and at great

friars entertainments which had become the great new fad of London, the suggestion of it at least is difficult to repress, and no other explanation of the simultaneity presents itself.

[1] See further, *infra,* "Plays," vol. II.

[2] *The Case is Altered* (*ca.* Sept.—Oct., 1597).—No dancing indicated.

Cynthia's Revels (*ca.* Apl. 1600).—(ed. Gifford-Cunningham), III, iii, p. 170, Asotus sings and dances. V, iii, p. 200*a*–202*a*, three several dances, each composed of eight maskers in rich attire,—four nymphs of Cynthia's court and four sylvan brethren.

Sir Giles Goosecap (*ca.* fall, 1600).—(ed. Bullen), II, i, p. 31, "He daunceth speaking." " . . . Your Lord is very dancitive methinkes." V, ii, p. 92, A masque closes the play, "In form whereof first daunce, . . . sing and daunce

THE MEASURE.

Now to the song and do this garland grace." Canto.

Poetaster (*ca.* Apl. 1601).—No dancing indicated. See further, *infra,* 119.

The Gentleman Usher (*ca.* sum., 1601).—(ed. Shepherd, 1873), II, i, p. 88*a*, Dance of Broom-man, Rush-man, Broom-maid, Rush-maid in a masque.

Monsieur D'Olive (*ca.* Oct.—Dec., 1601).—No dancing indicated.

May Day (*ca.* May, 1602).—(ed. Shepherd, 1873), I, i, preceded by "Chorus juvenum cantantes et saltantes. [Exeunt saltan." IV, i, p. 296, Quintiliano skips about while singing to music of fiddles. V, i, p. 303*b*, Enter Aurelia, &c., . . . masked, dancing. The masque is danced in three rounds. The play ends with all joining hands and dancing. Exeunt.

The Widow's Tears (Sept., 1602).—(ed. *idem*), III, ii, p. 326*a*, A masque. Six sylvans with torches dance. They take out the bride and the rest. All dance. V, i, p. 382*a*, "He dances and sings."

The Dutch Courtezan (fall—wint., 1602).—IV, i, Enter the Masquers; they dance.

The Malcontent (spring, 1603).—In IV, i, the masque begun on elaborate scale of the "brawl" is interrupted and not taken up again. The movements to be executed in the court dance described. V, iii, A masque, in which additional couples join at intervals.

[3] See especially A. Soergel, *Die Englischen Maskenspiele* (Diss., Halle, 1882); and Rudolf Brotanek, *Die Englischen Maskenspiele* (1902).

expense during the annual period of relaxation of the Christmas Revels. But these masques within the play at Blackfriars were a wholly new feature in the evolution of the drama,[1] and cannot have been but strikingly attractive and popular with the aristocratic patrons. The dance was made up of nymphs, or sylphs, or other airy, mythological, or fanciful shapes. The effect was heightened by special costumes calculated to lead the eye through the maze of masque into pleasing bewilderment.

In *Cynthia's Revels* the masque is danced by four nymphs and four fairy brethren. All are dressed to the taste of the Royal Court of Fancy. The nymphs in citron, green, vari-colored, and white, match their sylvan partners in green and blue, purple empaled with gold, blush-color, and watchet-tinsel. The whole situation is phantastic. The evolutions are executed under the magic of Cupid and Mercury in the presence of the throned Cynthia. Doubtless the masque was danced to the level of Jonson's conception of the mingling of colors, movement, and music into harmonious charm.

Sir Giles Goosecap closes with a dance of lords and ladies, followed by a song. This is on the order of a Court-masque, and is danced in honor of Hymen. Doubtless it was executed with elaboration, giving the light play its chief attraction. Merely its place of occurrence, at the end of the play, is mentioned in the printed drama as it has reached us.

Poetaster may be mentioned in this connection, although it contains no stage directions for dancing. But it has in act IV "a pretty fiction" of "a heavenly banquet" represented as played at the Court. It is "a pageant" or masque of the Bacchanalian revels of the gods in the full habit of deities, with the effects of too much nectar riotously dominant in the ichor of their deityships. The revel closes with irregular singing and loud music, and might appropriately have had the reeling accompaniment of the Bacchanalian dance ending with the usual joyous whoop in swinging the fair goddess clean from the floor at the great final leap of "the swaggering upspring."[2]

The "pretty show" in *The Gentleman Usher* is a masque pre-

[1] See *infra*, 119–21, 122–23.

[2] This is a custom still familiar in Europe. But to see this manner and finish of a dance in its native

sented in the presence of Duchess Margaret as she sits on her throne surrounded by the splendor of lords and ladies of the Court. The dancers and singers are sylvans and nymphs under the names of Man-bug, Woman-bug, Broom-man, Rush-man, Broom-maid, Rush-maid. The entertainment was voted as "pleasingly performed."

May Day opens with a chorus of youths dancing and closes with "the May-night show at Signor Honorio's." The whole play is preparation for this masque, and the most of the conversation of act V is simply lively setting for it. It is the life and entertainment at the home of a lord transferred with heightened coloring to the stage.

In *The Widow's Tears,* seen by the Duke of Stettin, "the revels and nuptial sports" at the palace of the "chaste widow," the Countess Eudora, make up much of act III. It is a royal bridal scene, containing a masque of "rare device." With Tharsalio in the chair of honor, the bride Eudora, surrounded by her court-ladies, takes her place at his side. The show and masque are the spiritualization of the ceremony of marriage. At the sound of music, Hymen, represented by one of the players who "hangs in the clouds deified," descends toward the bridal pair, while a chorus of "fresh and flowry sylvans" bearing torches enter beneath, "curveting and tripping ath' toe, as the ground they trod on were too hot for their feet." With such courtship as they make to the Dryads, they lead the bride and her court-ladies into the sylvan nuptial dance.

The Dutch Courtezan presents a masque at the opening of act IV. From previous mention in the play concerning the proposed masque, we rightly expect large entertainment from the performance of it. Possibly it may have fulfilled expectations, but neither the dialogue nor the stage directions let us know. The masquers at Sir Hubert Subboy's house are about to enter as the act opens. Servants are standing with lights to lend brilliance to the performance. More lights are called for. As the masquers arrive, Sir Lionel Freevill calls out "Call down our daughter. Hark!

woodland and mountain perfection of thrilling wildness as inspired originally into the reveling Pan and Bacchus by similar surroundings and atmosphere, visit sometime a dance in any valley of the Alps of the German Tyrol.

they are at hand: rank handsomely." As the masque is in celebration of the pending nuptials of the son of Sir Lionel with the daughter Beatrice of Sir Hubert, doubtless some magnificence was given the setting. But the masque is quickly broken up by a challenge to a duel,—feigned and prearranged. Altogether the reader is given to know very little of how the masque went. Certainly the action does not seem to allow great elaboration of the dance, but that could have been shaped to the will of the actors.

Twice in *The Malcontent* are we presented with a masque. The first, in which the elaborate evolutions of "The Brawl" were about to be danced, was interrupted and not carried out. The second closes the play. Mercury is the master of the revels. In the midst of a song to the accompaniment of cornets, the masque of four crowned Dukes, dressed in white robes, enters. They choose their ladies, and dance and chat to the accompaniment of cornets. It is not a highly successful show, and fully justifies Jonson in not including Marston with himself, Chapman, and Fletcher as the only ones who could write a masque.[1]

The indications in the plays for singing, music, and dancing as cited above, though amply substantiating Gerschow's statement of the Queen's requirements, cover only the incidental practicing of these arts. The chief exhibitions in music and singing had nothing to do with the plays, as already noted in the evidence from the Diary. It is probable also that musical entertainments were given exclusive of dramatic performances. For later, in certain articles of agreement concerning the conduct of the Children of the King's Revels at Whitefriars,[2] a company modeled after the Blackfriars organization, there is special provision made concerning the receipts from *musicales* as well as plays.

Also, the special "show"[3] presented at Court Feb. 6, 1601, is

[1] "Next himself, only Fletcher and Chapman could make a Mask." —*Notes of Ben Jonson's Conversations with William Drummond of Hawthornden, January, 1619* (ed. David Laing, *Shakesp. Soc. Pub.*, 1842), 4.

It is doubtless upon the eminent success of Chapman's masques in the plays of the Blackfriars Boys that Jonson gave him this praise, for only one separate masque by Chapman is now known. Certainly either Jonson or Chapman prepared the special "show" presented before the Queen by the Children Feb. 6, 1601, for no other poets were then employed to prepare their plays, and no others were turning out that sort of work.

[2] See complete work, vols. I, III.

[3] *Supra*, 115[1].

further suggestive. Although nothing further is known of it, there is little likelihood that Gyles and Evans took the trouble of preparing such an entertainment without reaping the benefits of its re-presentation at the theatre. Moreover, the Queen would hardly have called for such a specialty if the Children had not been previously trained in similar performances. Documentary proof of such "shows" would explain the gap in the period of 1597 to 1600. But at present it seems only highly probable that an important part of their lost *repertoire* consisted of these musical and dramatic *ephemera.*[1]

The requirements for the training of the Children at Blackfriars gave rise to new features in the drama. Music of minor sort as also singing are known earlier, particularly in plays of the Children of the Chapel and Paul's from their beginnings on. The public theatres had less of either. But the origin of musical *praeludia, interludia,* and *intermezzos,* cannot be traced farther than this period at Blackfriars.

The masque as an integral part of the play is unknown in dramatic history prior to the establishment of Blackfriars theatre.[2]

[1] It is probable that the Queen not infrequently called for such ephemeral "shows." Jonson may well have got that training here in masques which made him under James the foremost man of all time in that special form of entertainment. In his *Conversations with Drummond* (ed. Laing *S. S. Pub.*, 1842), 27, he says, "that the half of his Comedies were not in print." Why? Jonson was generally careful to preserve his work. Were a good part of his inventions among these evanescences, which the Queen may have commanded? His *Cynthia's Revels* is a tribute to her as such a patroness. In that play she is Cynthia and he is Crites. It is so suggestive of the mode of fulfilling the Queen's requirements at Blackfriars as to seem to be drawn from life when in that play, near the close of V, ii, just preceding the masque of iii, Arete says to Crites,

"Crites you must provide straight
for a masque,
'T is Cynthia's pleasure."

[2] Dr. A. Soergel, *Die Englischen Maskenspiele* (Diss. Halle, 1882), 88, dates the beginning of the masque within the play as *ca.* 1600, but without knowing the influences here mentioned. It is probable that this new species of drama that had such wide following in the next half century began three years earlier than Soergel puts it, with the opening of Blackfriars. This part of his thesis Dr. Soergel has only touched upon, leaving a thorough working to the future. But it has not yet been made public, if ever undertaken.

Dr. Rudolf Brotanek, *Die Englischen Maskenspiele* (Wien, 1902), 99, has assembled the known evidences to show that the masque within the play is of earlier origin:—

Das früheste Zeugnis für die in der Blütezeit der Maske sehr beliebte Einschiebung in andere Stücke stammt aus dem Jahre 1514 und bezieht sich auf ein Interlu-

The example there was followed almost immediately by others.[1]

In general the Chapel Children's plays did much to set the dramatic tone of the time. Novelty indeed carried it away, for the Children were "now the fashion."[2] The influence especially on Shakespeare as well as other contemporaries; likewise also on the character of the Court entertainments under James I, particularly the masques,[3] requires extensive investigation in detail, and is reserved of necessity for a later publication.

The furnishing of apparel at the Queen's cost has already been presented.[4] The prodigal lavishness of the rich costuming is mentioned in the Diary and abundantly supported by the plays. The sense of unlimited resources gave the Blackfriars dramatists, Jonson, Chapman, and Marston, a free hand and enabled them to undertake plots and present characters and situations requiring the most elaborate courtly elegance. Theatrical conditions in this phase as in all others had much to do with shaping the nature of the drama,—more than is commonly supposed. By virtue of the conditions of management and distributed shareship originally peculiar to the Globe,[5] Shakespeare alone of all the numerous other dramatists of this period[6] enjoyed a similar sense of unrestrained freedom in choice and artistic treatment of dramatic material.

The masques already mentioned, with fairies, nymphs, gods,

dium "devysed by Sir Harry Gyllfurth, Master of the Revells . . . in the whiche conteyned a moresk of VI. persons and II. ladys." [Foot-note reference, Collier, I, 68ff; *Letters and Papers of the Reign of Henry VIII,* I, 718f.] Diese Aufführung ist sicher identisch mit dem von William Cornish für dieselbe Weihnachtsfeier geschrieben *Tryumpe of Love and Bewte.* Sir Henry Guildford ersann offenbar die Handlung, und Cornish führte die Reden aus."

Brotanek points out further that in *Interlude of the Four Elements* at close is a Mumming indicated, "also, if ye list, ye may bring in a Disguising." Then the maskers appear. He mentions finally a similar superaddition in a Morality of 1527.

Court masques accompanied by dialogue are of course of even very much earlier date than these cases cited by Brotanek. But all these cases fall into a class wholly outside the masque as an integral part of the theatrical drama as known for the first time in the history of the English drama on Blackfriars stage.

[1] See further complete work, vol. I.

[2] *Infra,* 166–67, 174, F_1, 177.

[3] For a chronological list of known masques, see Soergel, *op. cit.,* 72–75 (1604–37); and Brotanek, *op. cit.*

[4] *Supra,* 98–101.

[5] See newly discovered documents on Shakespeare, Globe, and Blackfriars, *u. s.,* ix-x, 34^3, 44^{19}, 56^1.

[6] See list of dramatists, 1597–1603, *infra,* 163^2.

goddesses, kings, queens, dukes, countesses, noble bridal festivities, courtly entertainments, &c., show some of the accessory requirements for an elaborate theatrical wardrobe. Most of the plays represented some court, and all are comedies in high life. Presented before courtiers, lords, and ladies, and the fastidious fashionables of London, the dresses of necessity must meet the demands of the time. A representative example may stand for all. Since the Duke of Stettin was struck by the costuming in *The Widow's Tears,* I select from it. In I, ii, there is the following entrance of a courtly train in state:—Two gentlemen ushers in court-livery, heads bared, march in dignified pomp across the stage, followed by two Spartan lords. These in their turn serve but as ushers to their more splendid viceregal master, who walks after in single state. The Countess Eudora follows in flowing silks, with her daughter at her side. A waiting-gentlewoman bears the Countess's train. Another waiting-woman closes the procession in single dignity.

So rich and abundant is the apparel in this representative play that the German visitors remark upon it as excessive. Spectacular effect, however, was one of the novelties of the Beerbohm Tree sort that drew large audiences,—even more perhaps than the plots and sayings of the plays.

In contrast to the public theatres where plays were presented by daylight, the enclosed privacy and spectacular elegance at Blackfriars must have been altogether as attractive as the testimony of the time declares it. With an aristocratic audience filling the house from the seats in pit and galleries to the lords' rooms, the fashionable "smart set" sitting at right and left on the stage, and the shimmer of candlelight over the royal costumes of the boy-actors in the midst of music, dramatic movement, and phantastic masque, it is little wonder that the spectacular effect was enough "to ravish a man"[1] with delight, and to attract from the public theatres the most desirable part of their audience.[2]

Whether the requirement to present one play a week as mentioned by Gerschow in the Diary was elastic enough to allow that as the minimum, not the maximum, is not certain. Suggestive

[1] See *infra, Children of the Queen's Revels at Blackfriars.*

[2] *Supra,* 96, 112; *infra,* 128, 164-66, 174, 176-77.

circumstances indicate a possibility of twice a week. But they are insufficient for a final conclusion. The Queen attended the theatre on a Tuesday,—29 Dec., 1601,[1]—the Duke of Stettin on a Saturday,—Sept. 18, 1602.[2] The fact that Kirkham and partners in the 50 *l.* bond of April 20, 1602, agreed to pay Evans eight shillings "everye weeke weekly on Saturdaye . . . when & soe often as anye enterludes plaies or showes shalbe playde vsed showed or published in the greate hall"[3] &c., indicates Saturday as a day for acting. The same document from which the above is quoted declares that a play or interlude was presented there Saturday, 16 June, 1605,[4] and indicates Saturday as the regular time for both acting and payment, from date of the contract. This fixes Saturday as one regular day of the week for acting, but does not settle it as the only day. The purpose in the 1600 and 1601 orders emanating from Elizabeth to suppress all public theatres but the Globe and Fortune, and to restrict these to playing but twice a week looks like the attempt at a leveling process in number of representations as well as in other features, in conformity with the Queen's fixed purposes as carried out in the private establishment of Blackfriars.[5]

[1] *Supra*, 95.
[2] *Supra*, 106.
[3] *Supra*, 102[3].
[4] "Super diem sabbati existentem sextumdecimum diem Junij Anno regni domini Jacobi nunc Regis Angliae secundo quoddam ludicrum anglice an interlude lusum fuit in praedicta magna Aula."—*Cf.* document *in extenso*, in complete work, vol. III.
[5] See *infra*, chapter XII, entire.

CHAPTER X

SUMMARY OF EVIDENCES ON THE OFFICIAL SANCTION OF BLACKFRIARS

THERE is abundant evidence of the official conduct of the Blackfriars. The Diary of the Duke of Stettin declares it.[1] The paragraph in Evans's *Answer* concerning the weekly disbursements and allowances by the Queen's official shows it.[2] The Decree of the Court of Star Chamber is based upon it.[3] The provision for only the minor expense of rent and repairs, and the omission to mention the heavier charges of maintenance, apparel, and furniture in the 1602 agreement indicates it.[4]

Even in Clifton's *Complaint,* bitter with animus and Puritanism, the same comes out unintentionally. His statement that the Blackfriars was set up, furnished, and maintained "under color" of authority is an admission of the fact, since the "color" proved true.[5] Other charges of his not yet quoted are equally clear as showing the truth when the beclouding animus is blown away. For example, when Clifton threatened to report the managers to the Privy Council, they told him "to complayne to whome he would, & they would aunswer yt"; and also "that yf the Queene (meaning your highnes) would not beare them furth in that accion [*i. e.,* taking up and using the Boys in plays at Blackfriars], she (meaning lykwyse your highnes) should gett another to execute her comission, for them."[6] Furthermore, they declared "that they had aucthoritie sufficient soe to take any noble mans sonne in this land,"[7] and "that were it not for the benefitt they made by the sayd play howse, whoe would should serve the Chappell wth childeren, for them."[8]

All these replies show a confident security in the Queen's grants and permissions.

[1] *Supra,* 106–7. Also, *cf.* chapter IX, entire.
[2] *Supra,* 98–101.
[3] *Supra,* 81^{3}–82^{1}.
[4] *Supra,* 91–92^{2}.
[5] *Supra,* 79ff., 101^{2}–2.
[6] Clifton's *Complaint* in Star Chamber, G.-F., 130*c*.
[7] *Idem,* 131*a*.
[8] *Ibid;* also, *supra,* 81^{3}.

We have seen Gyles's authority,—the Commission for taking up children,[1]—and we know how he was allowed to interpret and exercise the powers granted.[2] He was not only unhampered by the Court of Star Chamber,[3] but during a period of nearly six years he carried out the Queen's will and had her favor. The Decree of the Court, cited by Kirkham, has furnished evidence that Evans too had official papers.[4] Their nature and purport we know pretty certainly by the theatrical practices under them. His leasing the theatre for twenty-one years,[5] which meant the rest of his life, also shows he felt his concessions extended practically *in perpetuum.*

Evidence has shown that about twenty-five to thirty boys were boarded and lodged at Blackfriars,[6] while the chorus of twelve Children[7] for the Chapel service were kept at or near the Palace.[8] At the theatre were provided school-room,[9] *praeceptores,* and *musici*[10] for the education and special training of the Children there.[11] As an essential adjunct to theatrical requirements, an extensive wardrobe was supplied,[12] as also probably stage-furniture.[13] The total expense of these elaborate provisions was borne by the royal exchequer.[14]

We have seen that the declarations of documents on certain of these heads are supported also by the evidence of plays.

I may here add also conclusions that lie patent to the observer. No one could fail to recognize the impossibility of the Children of the Chapel being used as actors without the Queen's knowledge. Students have hitherto recognized that such knowledge implied consent and some sort of favor. All the printed plays of the Boys announce them as Children of her Majesty's Chapel, or Children of Blackfriars, or both. The official record concerning their performances at Court speaks of them as Children of the Chapel.[15] It was universally known that they were the Children of the Chapel taken up for the Queen's service and maintained

[1] *Supra,* 60[1].
[2] *Supra,* 70–71.
[3] *Supra,* 83.
[4] *Supra,* 81–82[1].
[5] *Supra,* 57.
[6] *Supra,* 75, 73–76.
[7] *Supra,* 59[3].
[8] *Supra,* 73.
[9] *Supra,* 40[2], 40[6], 71.
[10] *Supra,* 106–7.
[11] *Supra,* 106–7, 113.
[12] *Supra, ibid;* 98–101, 123–24, 178.
[13] *Supra,* 101[2].
[14] *Supra,* 70–71, 98–101[1], 106–7, 178.
[15] See *Court Plays,* complete work, vol. II.

by her at Blackfriars. The public talked about it as did also the Queen's officials. Clifton based his suit on it, and the Duke of Stettin gained such official or semi-official information about it as enabled him to leave a record of the conditions that later moved him, as it seems, to action in establishing a troop of English actors at his court at heavy expense. The aristocratic folk of London, including members of the Court, knew these conditions under which Blackfriars was established and maintained, and were attracted to the plays there.[1] The Queen herself, accompanied by her court-ladies, granted the grace of her presence there.[2]

In the light of the evidence, the declaration of Gerschow's "erbauet"[3] is not remarkable. The simple explanation is that her Majesty provided for the establishment or setting up[4] and maintenance of the theatre at Blackfriars under royal favor and at

[1] *Infra,* 164–66, 174, 176–77.

[2] *Supra,* 95–97.

[3] It would be a matter of great interest if it could be shown that James Burbage in 1596 purchased and set about remodeling the Blackfriars in accordance with the Queen's desire to set up these boys as actors, and that Gyles, then Master at Windsor, or Hunnis, whom Gyles in 1597 succeeded as Master of the Children of the Chapel Royal, had at the same time joined with Evans, the lessee of the theatre, to carry out these plans. But there is no evidence of it, I think, even in "erbauet" that has set some on a false scent.

On the contrary, Clifton's charges (though not much reliance is to be placed upon them for reasons already shown, unless they are corroborative) indicate a date after the purchase, while the *Globe-Blackfriars Share-Papers of 1635* declare in reference to the purchase of Blackfriars that it "after was leased out to one Evans" (*supra,* 57[1]). Also the fact that Evans did not take the twenty-one-year lease until he had proved the venture a success points to the same.

But I must admit the force of opposing considerations. In response to the petition of 1596 against Blackfriars, the Queen's Council did nothing (*supra,* 18[2], 53). The size of Blackfriars is against supposing Burbage intended it to supplant "The Theatre." The new rooms built above the theatre were also peculiarly adaptable. But there is nothing more than unexplained suggestiveness in these points. It is to be hoped that other documents, traces of which are known to me, may yet be brought to light and contribute something conclusive.

[4] "Set up" and "erect" were used in a double sense in and long after Elizabeth's time. Applied to the theatre as a physical structure, the sense was "build"; as a company, "establish." The following, out of a large number of examples, suffice to illustrate:—

"for erectinge, buildinge, and settinge upp of a newe howse and stadge for a plaie-howse."—*Contract for the Fortune* (1600), in J. O. Halliwell-Phillips, *Outlines of the Life of Shakespeare* (9th ed., 1890), I, 305*a*.

"nowe erectinge a Newe Playhouse in that place."—*Privy Council Register,* 26 Sept., 1615, on suppression of Rosseter's Blackfriars theatre. See complete work, vols. I, III.

" . . . to sett vp a Playhowse in

royal expense as the combined evidences abundantly show. Even the expense for the rental of the building was provided for, not specifically, but generally, by the granted privilege of private gain to the management.

The maintenance of a player company and the furnishing of apparel was the chief expense in theatrical business. With these provided, not only expense free but under royal patronage, and with no charges to be met by the management except the minor sum of rental and repairs, there is little wonder that the Queen is regarded as "establishing" this theatre. Her part in it amounts to nothing less.

The results that arose immediately out of this theatrical establishment,—the Queen's official acts in carrying out her purposes, the City's opposition, the unfriendly attitude of the public theatres, the championship of their cause in *Hamlet,* as also the origin of certain theatrical modes and customs,—are reflexively contributive to a knowledge of the Queen's relations to Blackfriars, and are discussed in succeeding chapters.

the Blackfrya[rs]."—*Idem,* 27 Jan., 1617, on suppression of the same theatre. *Cf. ut praeantea cit.*

"A common playhowse then [1596, Nov.] preparing to be erected there."—*City's order to suppress Blackfriars* (1618–[19]), in Halliwell-Phillips, *op. cit.,* I, 311.

"to errecte, sett vpp, furnish and maynteyne a play house or place in the Blacke-fryers."—Clifton's *Complaint* in *Court of Star Chamber* (1601), *supra,* 101[2].

"lett the said Playhowse vnto Henrye Evans, . . . whoe intended then [*i. e.,* when lease was made] presentlye to erect or sett vpp a Companye of boyes . . . in the same."—Burbage's *Answer* (1612), *supra,* 57[1].

"except the said Evans could erect & keepe a companye of Playinge boyes."—*Idem, supra, ibid.*

"which after was leased out to one Evans that first sett up the boyes commonly called the Queenes Majesties Children of the Chappell."—*Globe-Blackfriars Share-papers of 1635* in Halliwell-Phillips, *op. cit.,* I, 317.

"to erect a company for representation of tragedies."—*Patent to George Jolly* (Dec. 24, 1660) in E. Malone, *op. cit.,* III, 252.

Gerschow's "erbauet" is a correct translation of "set up" or "erect" in either the literal sense, or with the meaning of "cause to be erected or set up," "found," "establish." His use of the word doubtless arises from translating "erect" or "set up" in the English source of his information (*i. e.,* talk with officials or others) used in the sense of "establish."

CHAPTER XI

THE CUSTOM OF SITTING ON THE STAGE ORIGINATING AT BLACKFRIARS

BEFORE dealing with larger matters affecting the stage and drama, and connected with the official conduct of Blackfriars in a series of causes and effects, I choose here to intercalate a chapter on the fashionable custom of sitting on the stage. The custom shows the tendency of influences started at Blackfriars. The origin of it is two-fold,—the physical structure of the stage and the fashionable character of the audience.

An investigation of known evidences on the subject changes previous views and establishes in their stead certain facts.

The fad of sitting on the stage came into vogue with the Blackfriars in 1597.[1] The earliest known allusion to it dates 1598.[2] It was a custom in no other theatre in Elizabeth's reign.[3]

The supposition of Malone[4] that this fashionable fad was the practice in all the private[5] theatres has been so widely accepted as a settled fact that it may be regarded as almost a universal error among students of the drama and stage.[6] The error arises out of the imitation of the custom at two of the later private theatres, the Cockpit and Salisbury Court.

There is no evidence for or against the custom at Whitefriars. I must conclude that it was unknown there.

Paul's never admitted the practice under either Elizabeth or James. The stage was too small. The evidence of this is in the *Induction* to John Marston's *What You Will,* and is too clear-cut

[1] *Infra,* 131–34.
[2] *Infra,* 132[1].
[3] *Infra,* 130–34, 136–38.
[4] E. Malone, *Shakespeare Variorum* (ed. Boswell, 1821), III, 78.
[5] The private theatres were Blackfriars, Paul's, Whitefriars, Cockpit (Phoenix), and Salisbury Court. Writers have generally left Paul's and Whitefriars out of this reckoning.
[6] Specific references even to recent publications containing this error would make an unwieldy and in no way helpful list. Almost any modern essay, doctor's dissertation, book, or edition of a play published in England, Germany, America, or France, and touching this custom, will furnish exemplification.

a declaration to be impeached.[1] The only other known mention in a play acted at Paul's is sufficiently definite to tell us that Paul's is not meant.[2] Else we should have the anomaly of the players uttering gratuitous self-detraction.

This exhausts both the Paul's list of references,[3] and the evidences on that side of the question that assumes the existence of the custom in any other theatre than the Blackfriars up to 1604.

Between 1597 and 1604, every identifying evidence of sitting on the stage is associated with Blackfriars. Also, as shown below, no public theatre of this period had the custom.[4] The logical conclusion is that every allusion to the practice within these limits refers to Blackfriars, whether specifically so declared or not.

[1] Atticus says to Philomuse (supposed gallants on the stage), "Let's place ourselves within the curtains, for good faith the stage is so very little, we shall wrong the general eye else very much."—John Marston, *Induction* to *What You Will*, in Marston's *Works* (ed. Bullen, 1887), II, 325. Acted at Paul's *ca.* April, 1601. (*Cf. Plays*, complete work, vol. II.)

[2] "*Courtesan.*— . . . I know some i' th' town that have done as much, and there took such a good conceit of their parts into the two-penny room, that the actors have been found i' th' morning in a less compass than their stage, though twere ne'er so full of gentlemen."—Thomas Middleton, *A Mad World My Masters*, in Middleton's *Works* (ed. Bullen, 1886), III, 347. Acted at Paul's *ca.* 1606(?).

[3] A stage-direction in W. Percy's *The Faery Pastorall* (published from MS. by Joseph Haslewood for *The Roxburghe Club*, 1824) requires a word here. After mentioning stage-properties to be used, the author says, "Now if so be that the Properties of any of These, that be outward, will not serue the turne by reason of concurse of the People on the Stage, Then you may omitt the sayd Properties" &c.

What stage does Percy mean? It is not infrequently supposed that this play was acted at Paul's. The author in writing had in mind all possible companies that might accept his plays, and would have been glad to appear at Paul's. This is shown by "A note to the Master of the Children of Powles" (printed in Collier, *op. cit.*,[2] III, 181) at the close of *Necromantes;* also in the directions concerning the double closing of *The Faery Pastorall* (in *op. cit. supra*) and in the direction for the Prologue in *The Cuckqueanes and Cuckolds Errants* (*idem*).

But there is no evidence that *The Faery Pastorall* or any other play in the MS. volume by Percy was ever acted by any company. His works doubtless belong to that numerous host (*cf.* Collier, *op. cit.*,[2] III, 231–32) that, for unsuitableness or other reasons, never trod the boards. Hence I set no special value upon the elaborate and impossible stage-directions or other items taken seriously by many as touching vital points in stage-history. But see on the contrary Carl Grabau, *Zur Englischen Bühne um 1600* in *Shakespeare-Jahrbuch* (1902), XXXVIII, 285; G. F. Reynolds, *Some Principles of Elizabethan Staging*, in *Modern Philology* (1904–5), II, 607 (later published separately); G. P. Baker, *The Development of Shakespeare as a Dramatist* (1907), 76–77.

[4] *Infra*, 136–38.

About 1598, Sir John Davies in a satirizing sonnet-epigram gives the first evidence.[1] Here the gallant is conceived as at the Blackfriars, on the stage (l. 3); or at the public theatre, over the stage (l. 4).

Ben Jonson twice in *Every Man out of his Humour* (*ca.* Aug., 1599,[2] at the Globe) satirizing the fashionable courtier, gallant, and would-be gentleman, gives this practice a caustic touch.[3] In the *Induction* to *Cynthia's Revels* at Blackfriars the following year (*ca.* April, 1600[4]) Jonson uses "one of your genteel auditors" of the unfriendly sort (not on the stage) to break a jest over, and follows it up with a dialogue flattering to the well-wishing stage-patron of the house.[5]

[1] IN RUFUM.

Rufus the Courtier at the theatre
Leauing the best and most conspicuous place,
Doth either to the stage himselfe transfer,
Or through a grate doth show his doubtful face.

For that the clamorous frie of Innes of court,
Filles vp the priuate roomes of greater prise:
And such a place where all may haue resort,
He in his singularitie doth despise.

Yet doth not his particular humour shunne,
The common stewes and brothels of the towne,
Though all the world in troupes do thither runne
Cleane and vncleane, the gentle and the clowne:

Then why should Rufus in his pride abhorre
A common seate that loues a common whore.

—Sir John Davies, Epigram 3 (before 1599), in *Isham Reprints* (ed. Charles Edmonds, 1870), sig. 3.

This careful reprint differs from the partial quotation of the same offered in Malone, *op. cit.*, III, 81.

[2] See *infra, Plays*, complete work, vol. II.

[3] Boorish Sogliardo, characterized by Jonson as being "so enamored of the name of gentleman that he will have it though he buys it," finds himself in tow of Carlo Buffone:—

Carlo. . . . when you come to plays, be humorous, look with a good starched face, and ruffle your brow like a new boot, laugh at nothing but your own jests, or else as the noblemen laugh. That 's a special grace you must observe.

Sogliardo.—I warrant you, sir.

Car.—Ay, and sit on the stage and flout, provided you have a good suit.

Sog.—O, I 'll have a suit only for that, sir.

—*Every Man out of his Humour*, in Jonson's *Works* (ed. Gifford-Cunningham), I, i, p. 72.

Fastidious Brisk.—Why, assure you, signior, rich apparel has strange virtues: it makes him that hath it without means, esteemed for an excellent wit: . . . takes possession of your stage at your new play.—*Idem*, II, ii, p. 94*b*.

[4] *Supra*, 75.

[5] 3 *Child* [Sal Pavy].—Stay; you shall see me do another now, but a more sober, or better-gathered gallant; that is, as it may be

Thomas Dekker later, remembering Jonson's satire upon him[1] in *Poetaster* (*ca.* April, 1601[2]) and the punishment he himself administered through *Satiromastix*[3] (summer, 1601) by having Horace [Jonson] tossed in a blanket, unequivocally in this instance has in mind the custom of sitting on the stage as being at Blackfriars.[4]

In 1601, Hamlet, in the excitement of bitter joy at the close of the play before the King, finds in the custom a means of satiric exultation.[5] Indeed the whole play within the play,—not as a new form, for it was old, but in manner,—seems intended for Blackfriars done in miniature, with grandees, even of the Hamlet sort, in patronizing display, familiar ease, and chorus-comment on the mimic stage.

George Chapman's *All Fools,* at Blackfriars after close of the 1603 plague, twice shows us the audience on the stage. The *Prologue* defers humbly to their judgments and craves their special

thought, some friend, or well-wisher to the house: and here I enter.

1 *Child* [Nat Field].—What, upon the stage too?

2 *Child* [Jack Underwood].—Yes; and I step forth like one of the children, and ask you, Would you have a stool, sir?

—In this quotation I have used the Gifford-Cunningham edition, and inserted the names of the Boy-actors who played these parts in the first representation at Blackfriars. They are easily determinable from the *Induction* itself.

[1] *Infra,* 171.

[2] *Supra,* 75[1].

[3] *Infra,* 171.

[4] "Now sir, if the writer be a fellow that hath either epigrammed you, or hath had a flirt at your mistris, or hath brought either your feather, or your red beard, or your little legs &c. on the stage, you shall disgrace him worse then by tossing him in a blancket, or giving him the bastinado in a Tauerne, if, in the middle of his play (bee it Pastoral or Comedy, Morall or Tragedie) you rise with a screwd and discontented face from your stoole to be gone: no matter whether the scenes be good or no; the better they are the worse do you distaste them: and, beeing on your feet, sneake not away like a coward, but salute all your gentle acquaintance, that are spread either on the rushes, or on stooles about you, and draw what troope you can from the stage after you."—Thomas Dekker, *How a Gallant should behaue himself in a Play-house,* chapter VI of *The Guls Horn-Booke* (1609), in *The Non-Dramatic Works of Thomas Dekker* (ed. Grosart, *The Huth Library,* 1885), II, 253.

[5] "Would not this Sir, and a Forrest of Feathers, if the rest of my Fortunes turne Turke with me; with two Prouinciall Roses on my rac'd Shooes, get me a Fellowship in a crie of Players sir."—Mr. William Shakespeares *Comedies, Histories & Tragedies* (folio 1623), *The Tragedie of Hamlet,* [III, ii] p. 268*b*.

favor.[1] The *Epilogue* shows them sitting less wise than they were flatteringly invited to be.[2]

In the spring of 1603, Marston's *The Malcontent* apparently touched the matter, though the present form of the play doubtfully shows the manner of it.[3] The Globe having annexed *The Malcontent* played it in 1604 with a special *Induction,* wherein the fixed privilege of sitting on the Blackfriars stage is specifically declared, and the similar privilege at the Globe explicitly denied.[4]

These are the known references to the custom of sitting on the stage up to 1604. They establish its origin in the Blackfriars.

This fashion is not to be confused with a certain practice originating in the public theatres. We know there was in more than one of them the custom of sitting "above" or "over" the stage at the rear.[5] This is shown in the De Witt—Van Buchell sketch of

[1] Great are the gifts given to united heads,
To gifts, attire, to fair attire, the stage
Helps much; for if our other audience see
You on the stage depart before we end;
Our wits go with you all, and we are fools.
—Shepherd's edition (1874), p. 77.

[2] We can but bring you meat and set you stools
And to our best cheer say you all are ( ) welcome.
—*Idem,* p. 77.

[3] Compare the *Induction,* "Blackfriars has almost spoiled Blackfriars for feathers" and the following in II, ii:—"no fool but hath his feather." The allusion is to the prevalent custom, as shown by other examples, of gallants wearing on the stage ornamental feathers, costing sometimes several pounds.

[4] The *Induction* opens with these data, thus:—

Tire-man.—Sir, the gentlemen will be angry if you sit here.

Sly.—Why, we may sit upon the stage at the private house. Thou dost not take me for a country-gentleman, dost? dost think I fear hissing?

[See further *infra,* 138.]

[5] These were the choice places. It is most probable that the actors of England of that day acted for art's sake, as their heirs the modern German actors do, and consequently faced the rear or sides as often as the front, if the faithful representation of the situation required it. To Americans and to many Englishmen, accustomed to spectacular display and studied artificiality in acting, with the fundamental rule "face the audience," it is as preposterous to think of these rear seats "over" the stage as the best as it is astounding and convincing in its artistry to see the modern German actor face any direction the case requires, in utter disregard of the audience but with all faithfulness to the life he is portraying, so that you forget you are in the theatre, and feel that you are living through real experiences.

But these rear seats "over" the stage were choice, not merely for hearing (for which we should be glad to believe they were mainly used), but most especially for being seen and making a display of

the Swan (*ca.* 1596), the *Roxana* print (1632), and the Red Bull picture (1672). *Skialetheia or a Shadow of Truth* (1598) declares it.[1] The epigram already quoted from Sir John Davies (*ca.* 1598) refers to the same,[2] and another epigram by him uses the same or same sort of person for ridicule[3] as is satirized in epigram 53 of *Skialetheia.*

Jests to Make you Merry, by Thomas Dekker and George Wilkins, testifies to the practice of this custom in some unidentifiable theatre in 1607.[4]

fine dress, as numerous contemporary witnesses testify.

[1] Of Cornelius

See you him yonder who sits o're the stage,
With the Tobacco-pipe now at his mouth?
It is *Cornelius* that braue gallant youth,
Who is new printed to this fangled age;
He wears Ierkin cudgeled with gold lace,
A profound slop, a hat scarce pipkin high,
For boots, a paire of dagge cafes; his face,
Furr'd with *Cads*-beard: his poynard on his thigh.
He wallows in his walk his slop to grace,
Swears *by the Lord,* daines no salutation
But to some iade that's sick of his own fashion,
As *farewell sweet Captaine,* or *(boy) come apace:*
Yet this Sir *Beuis,* or the fayery Knight
Put vp the lie because he durst not fight.

—[Edward Guilpin], *Skialetheia or A Shadowe of Truth, in certaine Epigrams and Satyres* (1598), epigram 53.

[2] *Supra,* 132[1], l. 4.

[3] In Sillam

Who dares affirm that Silla dares not fight?
When I dare sware he dares aduenture more
then the most braue, and most aldaring wight,
that euer armes whith resolution bore,
He that dare touch the most vnwholsome whore,
that euer was retirde into the spittle,
And dares court wenches standing at a dore,
The portion of his wit being passing little.
He that dares giue his dearest friend offences,
Which other valiant fooles doe feare to do,
And when a feuer doth confound his senses,
Dare eate raw biefe and drinke strong wine thereto.
He that dares take Tobaco on the stage,
Dares man a whore at noon-day through the street
Dares daunce in Poules, and in this formall age,
Dares say and doe what euer is vnmeete,
Whom feare or shame could neuer yet affright,
Who dares affirme that Silla dares not fight?

—Sir John Davies, *op. cit.,* epigram 28.

[4] "A wench hauing a good face, a good body, and good clothes on, but of bad conditions, sitting one day in the two-penny roome of a play-house, & a number of yong Gentlemen about her, against all whom she maintained talke, One that sat ouer the stage sayd to his

From the stage-requirements of the Globe and Fortune, we are warranted in concluding, at least tentatively, that such references as these last three do not relate to those theatres. Nearer approach to identification seems not now possible.

How late this practice of sitting above the stage at the public theatres or at any one of them was still maintained I do not know.

Just when, if ever, the Blackfriars fashion was taken up in emulation by any one of the public theatres cannot be said. Their stages were not all alike, nor all adaptable to similar conditions. There is doubt whether the custom spread widely amongst them. The evidence of its existence there at all is most slender. It was not allowed at the Globe in 1604, when *The Malcontent* was played.[1] I question whether it was ever tolerated there. The introductory address *To the great Variety of Readers,* signed by John Heminge and Henrie Condell, prefixed to the 1623 folio edition of Shakespeare's plays, singles out the Blackfriars and the Cockpit, the two private theatres then in existence, the first of which their company owned, and does not name the company's other house, the Globe, as the place of this practice.[2] Moreover, the physical conditions of the Globe building and stage, with the choicest seats in the gentlemen's rooms at right and left, could not have allowed the presence of an intervening audience of gallants any better at a later date than in 1604. There is, however, one direct evidence apparently on the other side, which may here be subjoined.[3] But as it is merely a hypothetical case, in a satire

friend: doe you not thinke that yonder flesh will stincke anon, hauing so many flyes blowing vpon it?"—Thomas Dekker, *op. cit.*, II, 292.

[1] *Supra,* 134[4].

[2] "Censure will not driue a Trade, or make the Iacke go. And though you be a Magistrate of wit, and sit on the Stage at *Black-Friers,* or the *Cock-pit,* to arraigne Playes dailie, know, these Playes haue had their triall alreadie, and stood out all Appeales."

[3] Yong Gallants glories soone will Ladies charm
S'foot walke the streets, in cringing vse your wits,
Suruey your Loue, which in her window sits.
Black-Friers, or the Palace-garden Beare,
Are subiects fittest to content your care.
An amorous discourse, a Poets wit,
Doth humor best your melancholy fit.
The Globe to morrow acts a pleasant play,
In hearing it consume the irkesome day.
Goe take a pipe of To. the crowded stage
Must needs be graced with you and your page.
Sweare for a place with each controlling foole,
And send your hackney seruant for a stoole.
—Henry Hutton, *Follie's Anatomie,*

at that, I doubt its value. It is even questionable whether this, upon close examination, can be taken to mean the Globe more than the Blackfriars. Besides, the advice is the same as given a little while before in the same work concerning Blackfriars.[1]

Middleton's *The Roaring Girl,* acted at the Fortune *ca.* 1610,[2] satirizes the practice throughout the greater part of the first scene of act II, and specifically ridicules[3] it as belonging to the private stage.[4] No further evidence comes from or relates to the Fortune.

From the evidence given and in the absence of contradictory testimony, I conclude that neither the Globe nor the Fortune made provision to entertain visitors on the stage. To have done so would have required a probable rebuilding of the stage, or of the best paying part of the theatre, the gentlemen's rooms at the sides.

The structure of certain stages furnishes further negative evidence. The Fortune,[5] eighty feet square outside and fifty-five within, built in other respects on the model of the Globe, had a stage forty-three feet wide which extended in depth to the middle of the yard, *i. e.,* excluding the tiring-house, twenty-seven and one-half feet. At left and right of the stage was the "orchestra"[6]

or Satyres and Satyrical Epigrams (1619), sign. B2.

[1] Dancing attendance on the Blackfriers stage,
Call for a stoole with a commanding rage.
—*Idem,* sign. A. See *infra,* 139[1]–40.

[2] Published 1611 with the statement on the title-page, "As it hath lately beene Acted on the Fortune-stage by the Prince his Players."

[3] [*At the feather-shop.*
Jack Dapper.—Pooh, I like it not.
Mistress Tiltyard.—What feather is't you'd have, sir?
These are most worn and most in fashion:
Amongst the beaver-gallants, the stone riders,
The private stage's audience, the twelvepenny-stool gentlemen,
I can inform you 'tis the general feather.
—Thomas Middleton, *The Roaring Girl,* II, i, 151–56, in Middleton's *Works* (ed. Bullen, 1885) IV; 37.

[4] This meant, of course, the Blackfriars. It is not certain whether the Cockpit was yet built, which was the next theatre to take up the fashion.

[5] For details see *Contract for the Fortune* in Halliwell-Phillips, *op. cit.,* I, 304–306. See also plat of the Fortune, *supra,* 50–51.

[6] Dr. Cecil Brodmeier, *Die Shakespeare Bühne nach den alten Bühnenanweisungen* (Diss. Halle, 1904), 102, following Professor Brandl, evidently misunderstanding the designation "orchestra" in the Swan sketch as having not the Latin sense but the modern meaning, places the music here!! To be sure, Brodmeier does not deal with the Fortune. But as he melts the stages of "The Theatre," Curtain, Globe, and Blackfriars into one, the addition of the Fortune cannot disturb his resulting composite. *Cf. supra,* 42[5], 44–45.

(in the Latin sense), or place of the four rooms for gentlemen.[1] There was an aisle six feet wide between these chief auditors and the stage.[2] The sketch of the Swan shows a similar arrangement, and the Hope was modeled after the Swan.[3]

Physical conditions thus indicate the stages of at least four[4] public theatres were open to the chief auditors at right and left. An audience of gallants on the stage at either side, then, would have cut off the view from the gentlemen's rooms. This is the condition the Tire-man refers to in the *Induction* to *The Malcontent* when he tells Sly, "Sir, the *gentlemen* will be angry if you sit here."[5]

These negative conditions and the absence of unquestionable affirmative testimony seem sufficient to conclude with some certitude that the Globe, Fortune, Swan, and Hope, at least, did not foster the Blackfriars custom. The Rose, a small theatre, went out of the reckoning about 1603–4,[6] and the conditions at the Red Bull are uncertain. There remains the Curtain alone as an unknown quantity.

Against these considerations of physical conditions, there are two bits of evidence so stated as to imply that the practice may have been general in public theatres. Both are in satires;—not reliable repositories of fact. The one from Middleton,[7] in its drive at the would-be gallant posing before the public, seems the more convincing of the two. The notorious gull or fine fop, lover of display and perennial subject of the laugher's scorn,[8] is like-

[1] See *Contract, u. s.*, 29[3].

[2] *Supra*, 45, and plat, 50–51.

[3] *Supra*, 31[4], 42[5].

[4] The Red Bull picture seems to indicate a fifth. But as it does not show the gentlemen's rooms, but does show people in the aisles at right and left, I omit it. If the Red Bull had gentlemen's rooms, then it should be included in the list.

[5] *Supra*, 134[4].

[6] No plays are heard of here at a later date. See also Henslowe's talk with Thomas Pope, June 25, 1603, on pulling down "the littell Roosse" in Henslowe's *Diary* (ed. W. W. Greg, 1904), I, 178. But it was not pulled down. John Taylor, the Water-poet, *Works* (1630), 172, *The Watermen's Suit*, indicates it existed in 1613, though closed. And Sir Henry Herbert's Office-book shows that after 1620 it was occasionally used for prize-fighters. See Malone, *op. cit.*, III, 56.

[7] "But turning my legacy to youward, Barnaby Burning-glass, arch tobacco-taker of England, in ordinaries, upon stages both public and private," &c.—*The Devil's Last Will and Testament*, in *The Black Book* (1604), Middleton's *Works* (ed. Bullen, 1885–86), VIII, 43.

[8] Out of the scores of satires and jests on this sort of person, partly real and partly imaginary but gen-

wise satirized in the example from Dekker, which is a part of the advice to such pretended gallants how to make themselves, if pos-

erally exaggerated, the following three as the best (or the worst) may here be quoted.

MEDITATIONS OF A GULL.

See yonder melancholy gentleman,
Which hoodwinck'd with his hat, alone doth sit,
Thinke what he thinkes, and tel me if you can,
What great affaires trouble his little wit:
He thinkes not of the warre twixt France & Spain,
Whether it be for Europes good or ill,
Nor whether the empire can it selfe maintaine
Against the Turkish powre encroching still,
Nor what great towne in all the nether lands,
The States determine to besiege this spring,
Nor how the Scottish pollicie now standes,
Nor what becomes of th' Irish mutining:
But he doth seriouslie bethinke him whether
Of the guld people he be more esteemde,
For his long cloake, or for his great blacke feather,
By which each gull is now a gallant deemde.
Or of a Iourney he deliberates,
To Paris garden cock-pit, or the play,
Or how to steale a dogge he meditates,
Or what he shall vnto his mistris say:
Yet with these thoughts he thinks himself most fit
To be of counsell with a King for wit.

—Sir John Davies, Epigram 47 (before 1599), in *Isham Reprints* (ed. Charles Edmonds, 1870).

Epigram 20.

To Candidus.

Friend *Candidus,* thou often doost demaund,
What humours men by gulling vnderstand:
Our *English Martiall* hath full pleasantly,
[*i. e.,* Sir John Davies in Epigram 47, *supra*]
In his close nips described a gull to thee.
I'le follow him, and set downe my conceit
What a Gull is: oh word of much receit!
He is a gull, whose indiscretion
Cracks his purse strings to be in fashion;
He is a gull, who is long in taking roote
In barraine soyle, where can be but small fruite:
He is a gull, who runnes himselfe in debt,
For twelve dayes wonder, hoping so to get;
He is a gull, whose conscience is a block,
Not to take interest, but wastes his stock:
He is a gull, who cannot haue a whore,
But brags how much he spends upon her score;
He is a gull, that for commodite
Payes tenne times ten, and sells the same for three:
He is a gull, who passing finicall,
Perseth each word to be rhetoricall:
And to conclude, who selfe conceitedly
Thinkes al men guls, ther's none more gull then he.

—[Edward Guilpin], *Skialetheia. Or, A shadowe of Truth, in certaine Epigrams and Satyres* (Lond. 1598), sign. A3.

Epigram 1.

What have we here? a mirror of this age,
Acting a Comicks part vpon the stage.
What gallant's this? His nature doth vnfold

sible, more ridiculous and absurd than they already are.[1] The author mentions both public and private stages as places on which such gallant may display himself.[2]

Dekker's satire was apparently written while the Boys held the Blackfriars boards, for the author has constantly them and their performances in mind, and once shows how the quarrel with Jonson in 1601 still rankles.[3] Yet he confuses throughout the chapter both private and public theatres.[4]

Him, to be framed in Phantastes mold.
Lo how he iets; how sterne he shewes his face,
Whiles from the wall he passengers doth chase.
Muse touch not this man, nor his life display,
Ne with sharpe censure gainst his vice inuey:
For, sith his humor can no iesting brooke,
He will much lesse endure a Satyre's book.
Beschrew me, sirs, I durst not stretch the streete,
Gaze thus on conduits scrowls, base vintners beat
Salute a Mad-dame with a french cringe grace,
Greete with God-dam-me, a confronting face,
Court a rich widow, or my bonnet vaile,
Conuerse with Bankrupt Mercers in the Gaile,
Nor in a Metro shew my Cupid's fire,
Being a french-poxt Ladies apple-squire;
Least taxing times (such folly being spide)
With austere *Satyres* should my vice deride.
Nere breath, I durst not vse my Mistrisse Fan,
Or walke attended with a Hackney-man,
Dine with Duke *Humfrey* in decayed *Paules*,
Confound the streetes with *Chaos* of old brawles,
Dancing attendance on the Blackfriers stage,
Call for a stoole with a commanding rage,
Nor in the night time ope my Ladies latch,
Lest I were snared by th' all-seeing Watch:
Which Critick knaves, with Lynxes pearcing eye,
Into mens acts obseruently do prye.
—Henry Hutton, *Follie's Anatomie, or Satyres and Satyrical Epigrams* (1619), sign. A.

[1] See *How a Gallant should behaue himself in a Play-house*, chapter VI of *The Guls Horne-book* (1609), in *The Non-Dramatic Works of Thomas Dekker* (ed. Grosart, *Huth Library*, 1885), II, 246–55.

[2] "Whether therefore the gatherers of the publique or priuate Playhouse stand to receiue the afternoones rent, let our Gallant (hauing paid it) presently aduance himselfe vp to the Throne of the Stage. I meane not into the Lords roome (which is now but the Stages Suburbs): No, those boxes, by the iniquity of custome, conspiracy of waiting-women and Gentlemen-Vshers, that there sweat together, and the couetousnes of Sharers, are contemptibly thrust into the reare, and much new Satten is there dambd, by being smothered to death in darknesse. But on the very Rushes where the Comedy is to daunce, yea, and vnder the state of *Cambises* himselfe must our feathered *Estridge*, like a piece of Ordnance, be planted valiantly (because impudently) beating downe the mewes and hisses of the opposed rascality."—*Idem*, 247–48.

[3] *Supra*, 133[4].

[4] "By sitting on the stage, you

It looks very much as if Dekker, having in mind the performances and customs of Blackfriars, were mentally transferring these to the public theatres for the purpose of heightening the absurdities of the gallants under imagined ridiculous conditions and circumstances, or such as existed but rarely.

Nothing in the way of very conclusive evidence can be made out of these satiric references in Middleton and Dekker.

It may be that occasionally a gallant intruded his presence on the public stage. But on the whole it seems unlikely that the public theatres accommodated their conditions to the Blackfriars fad. It would be gratifying to find proof that they did. It would show even more powerful influences of the Queen's Children than I have been able to trace. But the evidence at hand is not highly convincing. One can only admit the possibility, and hope for determinative declaration from contemporaries.

Nevertheless the Blackfriars fashion spread widely. Not only were the two private theatres, the Cockpit[1] and Salisbury Court,[2] built on the general model of the Blackfriars,[3] but the practice of sitting on the stage was also imitated. There are numerous allusions to the custom as practiced in both.[4] In all three the gentlemen's rooms were not at right and left of the stage as in the public theatres, but in the region where our modern private boxes are,[5]—"which," to quote Dekker, "is now but the Stages Sub-

may (with small cost) purchase the deere acquaintance of the boyes: haue a good stoole for sixpence: at any time know what particular part any of the infants present."—*Idem*, 249.

This of course is on the Blackfriars Boys. Yet eight lines beyond, in the same paragraph, without break of thought, the mind of the author is on the situation as if it were in the public theatre, thus:—

"Neither are you to be hunted from thence, though the Scarcrows in the yard hoot at you, hisse at you, spit at you, yea, throw durt euen in your teeth" &c.

Again (252) he has the gallant take a pair of oars for the playhouse (*i. e.*, to the Bankside), has him on the stage playing cards and (253) gulling the "Ragga-muffins" at the public theatre, then without break of thought recalls in the next paragraph the quarrel with Jonson in 1601 (*u. s.*, 133[4]), and in the following paragraph (254) goes on with this advice concerning the Blackfriars Boys:—"mewe at passionate speeches, blare at merrie, finde fault with the musicke, whew at the childrens Action, whistle at the songs" &c.

[1] *Supra*, 8[1].

[2] Built 1629. See documents, *u. s.*, 39[3].

[3] *Supra*, 36[2], 39[3].

[4] It is without the scope of the present work to assemble all these. But see for example *supra*, 43[6], 136[2] and *infra*, 143[1].

[5] *Supra*, 36[2], 46, 50–51, plats.

urbs."[1] The gallants occupied the right and left wings of the stage itself, built and reserved especially for such use.[2]

There is no reason to suppose with Gifford that the audience on the Blackfriars stage of the Chapel Boys was indecent;[3] nor with Collier that their presence there annoyed the actors and disturbed the play.[4] On the contrary they seem to have been genteel and ultra-fashionable, and the stage was specially adapted, fitted, and reserved for their presence. But in the course of years the custom was, presumably, abused and undue liberties were taken. Even in 1616 Jonson in the *Prologue* to *The Devil is an Ass*[5] indicates the fad was pushed to such popularity among the grandees that at a new play at Blackfriars the actors were left barely elbow-room for their performance. Sometime prior to

[1] *Supra*, 43, 140[2].

[2] *Supra*, 46, 50–51 (plat), 147.

[3] *Works of Ben Jonson* (ed. Gifford-Cunningham, 1816), I, 146[1]. Gifford seems to have taken Dekker's satire on conditions in any theatre of a later time (or of no time) as applicable at any time or all times to this particular theatre.

[4] J. P. Collier, *op. cit.*,[2] III, 144. Collier seems to be transferring to English territory conditions existing half a century to a century and a half later on the French stage, or basing conclusions upon conditions of 1616 and later, *u. i.*, 142[5]–43[1].

[5] Prologue.

THE DEVIL IS AN ASS: that is today,
The name of what you are met for, a new play.
Yet grandees, would you were not come to grace
Our matter, with allowing us no place.
Though you presume Satan, a subtle thing,
And may have heard he's worn in a thumb-ring;
Do not on these presumptions force us act
In compass of a cheese-trencher. This tract
Will ne'er admit our Vice, because of yours.
Anon, who worse than you, the fault endures
That yourselves make? when you will thrust and spurn
And knock us on the elbows; and bid, turn;
As if, when we had spoke, we must be gone,
Or, till we speak, must all run in, to one,
Like the young adders, at the old ones mouth!
Would we could stand due north, or had no south,
If that offend; or were Muscovy glass,
That you might look our scenes through as they pass.
We know not how to affect you. If you'll come
To see new plays, pray you afford us room,
And shew this but the same face you have done
Your dear delight, The Devil of Edmonston.
Or, if for want of room it must miscarry,
'Twill be but justice that your censure tarry,
Till you give some: and when six times you have seen't
If this play do not like, the Devil is in't."
—*The Works of Ben Jonson* (with a Memoir by Gifford, 1838), 343.

Sept. 14, 1639, Charles I had put an end to the custom of sitting on the stage.[1]

The influence did not end here. It spread even to France and Germany. Once imported to spectacular Paris, the custom was more tenacious than in London. For nearly a century and a half it shaped the structure of the stage and influenced the form of both drama and acting. There can be no great doubt that its importation dates from the period of high favor in London. Yet D'Aubignac[2] in 1657 fails to mention it. However in the same year or the year after, Tallemant des Réaux speaks of its abuse as an intolerable nuisance, with no suggestion that it is a novelty.[3] And only three or four years later, Molière satirizes it in the opening speech of *Les Fâcheux* (1661) as a mature practice having features of refinement for the refined, but abused by the parasitic bore and the creature of pretentious worth and ostentatious gentility, to the annoyance of the actors and the displeasure of the better sort of spectators.[4] During the next hundred years it is

[1] See *"Instructions touching Salesbery Co^rt Playhouse, 14 Septem., 1639,"* in *The Shakespeare Society's Papers* (1849), IV, 99–100, communicated by Peter Cunningham from the papers of Mr. Richard Heaton, manager of the Salisbury Court theatre, in which Heaton makes memorandum. in certain articles with the players:—

"And one dayes p'ffitt wholly to themselves every yeare in consideration of their want of stooles on the stage, wch were taken away by his M^tes comand."

[2] Francois Hédelin (Abbé d'Aubignac), *La Practique du Théâtre* (1657).

[3] "Il y a, à cette heure, une incommodité épouvantable à la Comédie, c'est que les deux côtés du théâtre sont tout pleins de jeunes gens assis sur des chaises de paille; cela vient de ce qu'ils ne veulent pas aller au parterre, quoiqu'il y ait souvent des soldats à la porte, et que les pages ni les laquais ne portent plus d'épées. Les loges sont fort chères, et il y faut songer de bonne heure: pour un écu, ou pour un demi-louis, on est sur le théâtre; mais cela gâte tout, et il ne faut quelquefois qu'un insolent pour tout troubler."—Tallemant des Réaux, *Mondory, ou l'histoire des principaux comédiens françois: Les Historiettes,* VII, 178.

[4] *Eraste.*—Sous quel astre, bon Dieu, faut-il que je sois né,
Pour être de Fâcheux toujours assassiné!
Il semble que partout le sort me les adresse,
Et j'en vois chaque jour quelque nouvelle espèce;
Mais il n'est rien d'égal au Fâcheux d'aujourd'hui;
J'ai cru n'être jamais débarassé de lui,
Et cent fois j'ai maudit cette innocente envie
Qui m'a pris à dîné de voir la comédie,
Où pensant m'égayer, j'ai misérablement
Trouvé de mes péchés le rude châtiment.
Il faut que je te fasse un récit de l'affaire,

again and again subject of adverse comment. In 1731 Voltaire condemns it as a cause of dramatic and histrionic de-

Car je m'en sens encor tout ému de colère.
J'étois sur le théâtre, en humeur d'écouter
La pièce, qu'à plusieurs j'avois ouï vanter;
Les acteurs commençoient, chacun prêtoit silence,
Lorsque d'un air bruyant et plein d'extravagance,
Un homme à grands canons est entré brusquement,
En criant: "Holà-ho! un siége promptement!"
Et de son grand fracas surprenant l'assemblée,
Dans le plus bel endroit a la pièce troublée.
Hé! mon Dieu! nos François, si souvent redressés,
Ne prendront-ils jamais un air de gens sensés,
Ai-je dit, et faut-il sur nos défauts extrêmes
Qu'en théâtre public nous nous jouions nous-mêmes,
Et confirmions ainsi par des éclats de fous
Ce que chez nos voisins on dit partout de nous?
Tandis que là-dessus je haussois les épaules,
Les acteurs ont voulu continuer leurs rôles;
Mais l'homme pour s'asseoir a fait nouveau fracas,
Et traversant encor le théâtre à grands pas,
Bien que dans les côtés il pût être à son aise,
Au milieu du devant il a planté sa chaise,
Et de son large dos morguant les spectateurs,
Aux trois quarts du parterre a caché les acteurs.
Un bruit s'est élevé, dont un autre eût eu honte;
Mais lui, ferme et constant, n'en a fait aucun compte,
Et se seroit tenu comme il s'étoit posé,
Si, pour mon infortune, il ne m'eût avisé.
"Ha! Marquis, m'a-t-il dit, prenant prés de mois place,
Comment te portes-tu? Souffre que je t'embrasse."
Au visage sur l'heure un rouge m'est monté
Que l'on me vît connu d'un pareil éventé.
Je l'étois peu pourtant; mais on en voit paroître,
De ces gens qui de rien veulent fort vous connoître,
Dont il faut au salut les baisers essuyer,
Et qui sont familiers jusqu'à vous tutoyer.
Il m'a fait à l'abord cent questions frivoles,
Plus haut que les acteurs élevant ses paroles.
Chacun le maudissoit; et moi, pour l'arrêter:
"Je serois, ai-je dit, bien aise d'écouter.
—Tu n'as point vu ceci, Marquis? Ah! Dieu me damne,
Je le trouve assez drôles, et je n'y suis pas âne;
Je sais par quelles lois un ouvrage est parfait,
Et Corneille me vient lire tout ce qu'il fait."
Là-dessus de la pièce il m'a fait un sommaire,
Scène à scène averti de ce qui s'alloit faire;
Et jusques à des vers qu'il en savoit par cœur,
Il me les récitoit tout haut avant l'acteur.
J'avois beau m'en défendre, il a poussé sa chance,
Et s'est devers la fin levé longtemps d'avance;
Car les gens du bel air, pour agir galamment,
Se gardent bien surtout d'ouïr le dénouement.
Je rendois grâce au Ciel, et croyois de justice
Qu'avec la comédie eût fini mon supplice;

cay.[1] Later, in the introduction to *Sémiramis* (1748), he complains more sharply of the abuses of the custom as noxious and pestilential in both dramatic composition and stage representation.[2]

Mais, comme si c'en eût été trop bon marché,
Sur nouveaux frais mon homme à moi s'est attaché,
M'a conté ses exploits, ses vertus non communes,
Parlé de ses chevaux, de ses bonnes fortunes,
Et de ce qu' à la cour il avoit de faveur,
Disant qu'à m'y servir il s'offroit de grand cœur.
Je le remerciois doucement de la tête,
Minutant à tous coups quelque retraite honnête;
Mais lui, pour le quitter me voyant ébranlé:
"Sortons, ce m'a-t-il dit, le monde est écoulé;"
Et sortis de ce lieu, me la donnant plus sèche:
"Marquis, allons au Cours faire voir ma galèche. . ."

—*Les Fâcheux, Comédie* (1661), I, i, 1–76. *Œuvres de Molière* (nouvelle édition, par M. Eugène Despois, 1876), III, 35–39.

For a convenient prose translation see Henri van Laun, *The Dramatic Works of Molière rendered into English* (*The Bores*), I, 309–11.

[1] "The place in which plays are acted, and the abuses which are crept into it, are also a cause of that dryness which may be objected to some of our dramatic pieces. The benches set on the stage for the spectators, contract the space of it, and make it almost impossible to represent the whole action. To this defect 't is owing, that the scenes and decorations which are so strongly recommended by the antients, so seldom suit with the play. Above all, it hinders the actors from passing out of one room into another before the spectators, as was the judicious practice of the *Greeks* and *Romans*, in order to preserve at one and the same time the unity of place and probability.

How could we attempt, for instance, to bring Pompey's ghost, or the genius of Brutus, on our stage, among so many young people, who view the most serious incidents purely that it may give them an opportunity of saying some smart thing."—Voltaire, *A Discourse on Tragedy, with Reflections on the English and French Drama.* Published with *An Essay upon the Civil Wars of France* (London, 1731), 7–8. Written by Voltaire in both English and French as an introduction to his *Henriade* and *Brutus*, and addressed to Mylord Bolingbroke.

[2] Un de plus grands obstacles qui s'opposent, sur notre théâtre, à toute action grande et pathétique, est la foule des spectateurs confondus sur la scène avec les acteurs: cette indécence se fit sentir particulièrement à la première representation de *Sémiramis*. La principale actrice de Londres, qui était présente à ce spectacle, ne revenait point de son étonnement; elle ne pouvait concevoir comment il y avait des hommes assez ennemis de leurs plaisirs pour gâter ainsi le spectacle sans en jouir. Cet abus a été corrigé dans la suite aux représentations de *Sémiramis*, et il pourrait aisément être supprimé pour jamais. Il ne faut pas s'y méprendre: un inconvénient tel que celui-là seul a suffi pour priver la France de beaucoup de chefs-d'œuvre, qu'on aurait sans doute hasardés si on avait eu un théâtre libre, propre pour l'action, et tel qu'il est chez toutes les autres nations de l'Europe.

Mais ce grand défaut n'est pas assurément le seul qui doive être corrigé. Je ne puis assez m'étonner ni me plaindre du peu de soin qu'on a en France de rendre les théâtres

Through Voltaire's efforts it was suppressed in the acting of *Sémiramis* after the first night.

The custom was eleven years later (1759) abolished from the French stage through the payment of a considerable sum of money by the Count de Lauraguais to the actors on the condition of not allowing thereafter any spectators on the stage.[1]

The custom was never adopted on the stage of the serious German. Its only known appearance in Germany is on a French stage in French plays by a French company at Frankfurt, the home of Goethe, while the French troops of the Seven Years War were quartered there. In the same year in which the custom was abolished from the Parisian stage, 1759, the youthful and precocious Goethe, then ten years old, saw and even shared in its practices in this French theatre at Frankfurt.[2]

dignes des excellents ouvrages qu'on y représente et de la nation qui en fait ses délices. *Cinna, Athalie,* méritaient d'être représentés ailleurs que dans un jeu de paume, au bout duquel on a élevé quelques décorations du plus mauvais goût, et dans lequel les spectateurs sont placés, contre tout ordre et contre toute raison, les uns debout sur le théâtre même, les autres debout dans ce qu'on apelle *parterre,* où ils sont gênés et pressés indécemment, et où ils se précipitent quelquefois en tumulte les uns sur les autres, comme dans une sédition populaire. On représente au fond du Nord nos ouvrages dramatiques dans des salles mille fois plus magnifiques, mieux entendues, et avec beaucoup plus de décence.—Voltaire, *Dissertation sur la Tragédie Ancienne et Moderne* (seconde partie). Published as an introduction to *Sémiramis, tragédie* (1748).

[1] "Enfin, en 1759, M. le comte de Lauraguais, aujourd'hui duc de Brancas, l'a fait cesser en donnant aux comédiens une somme considérable pour les indemniser de la perte que devait leur faire éprouver la suppression des banquettes de l'avant-scène" (Auger, 1819)—Quoted in *Les Fâcheux, Oeuvres de Molière* (nouvelle edition, par M. Eugène Despois, 1876), III, 36[1a].

[2] Was mir meine Besuche auf dem Theater sehr erleichterte, war, dasz mir mein Freibillett, als aus den Händen des Schultheiszen, den Weg zu allen Plätzen eröffnete, und also auch zu den Sitzen im Proscenium. Dieses war nach französischer Art sehr tief und an beiden Seiten mit Sitzen eingefaszt, die, durch eine niedrige Barrière beschränkt, sich in mehrern Reihen hinter einande aufbauten und zwar dergestalt, dasz die ersten Sitze nur wenig über die Bühne erhoben waren. Das Ganze galt für einen besondern Ehrenplatz; nur Offiziere bedienten sich gewöhnlich desselben, obgleich die Nähe der Schauspieler, ich will nicht sagen jede Illusion, sondern gewissermaszen jedes Gefallen aufhob. Sogar jenen Gebrauch oder Miszbrauch, über den sich Voltaire so sehr beschwert, habe ich noch erlebt und mit augen gesehen. Wenn bei sehr vollem Hause und etwa zur Zeit von Durchmärschen angesehene Offiziere nach jenem Ehrenplatz strebten, der aber gewöhnlich schon besetzt war, so stellte man noch einige Reihen Bänke und Stühle ins Proscenium auf die Bühne selbst, und es blieb den Helden und Heldinnen nichts übrig als in einem sehr mäszigen

This is the last contemporary testimony.

The adaptation of the foreign stage to the Blackfriars custom, as shown in the testimony of Tallemant des Réaux, Molière, Voltaire, and Goethe, is corroborative evidence of the stage-structure at Blackfriars where it originated. In all cases the seats were at right and left of the actors. In the earliest form, as we know from the evidence at Blackfriars and from Dekker's *The Guls Horne-Book,* the wings and the seats there were on a level with the stage of action. But in a century and a half the structural form had evolved from that unvarying level into the latest phase as reported by Goethe, with the elevated seats at the sides placed on an amphitheatrical slope down to the low dividing rail about the stage proper, but with the highest privileges still reserved within the narrowed borders of the actors themselves.

I have given thus much space to this custom of sitting on the stage because it shows the tendency and potency of influences begun at Blackfriars under Queen Elizabeth's patronage.

Raume zwischen den Uniformen und Orden ihre Geheimnisse zu enthüllen. Ich habe die "Hypermnestra" selbst unter solchen Umständen aufführen sehen. — Goethe's *Werke,* XVII, *Wahrheit und Dichtung* (ed. Prof. Dr. H. Düntzer, in J. Kürschner's *Deutsche National-Litteratur,* Band 98), Teil I, Drittes Buch, 119–20.

CHAPTER XII

THE QUEEN'S PURPOSES.—OPPOSING THEATRICAL AND OFFICIAL CONDITIONS, 1597–1603

WITH 1597 began that attempt at state control of the theatres which later under James I put on the novel cloak of exclusive royal patronage,[1] and ultimately degenerated into the principle of monopoly first granted by Charles II to Killigrew and Davenant,[2] whence it passed on down even into the reign of Victoria.

From 1597 to the close of Elizabeth's reign more official orders were directed against the public theatres than in all the rest of the years together from 1576 to the Puritan suppressions beginning with the civil war in 1642.[3]

No order of permanent suppression emanated from the Queen prior to 1597. There had been, however, numerous orders touching regulation of the theatres for various causes, especially during periods of infectious disease.[4] From 1597 to the close of Elizabeth's reign, five orders of suppression were issued by the Privy Council in her name, besides unimportant temporary regulations.

The cause for this brief strenuousness has been taken for granted to be Puritanism.[5] No one has ever given a basis for the

[1] See complete work, vol. I.

[2] *Idem.*

[3] The facts in this sentence and in the following paragraphs in this relation are taken from the original *Registers of the Privy Council,* at Whitehall Palace. Only a part of these, up to 1602, are as yet available in the government publications, *Acts of the Privy Council.*

[4] The orders touching the Theatre and Curtain are collected by J. O. Halliwell-Phillips, *Outlines of the Life of Shakespeare* (9th ed. 1890), I, 346–75, *passim.* Numerous others are in George Chalmers, *Farther Account of the English Stage,* published in Malone's *Shakespeare Variorum* (ed. Boswell, 1821), III, 414–57. All are available in the published *Acts of the Privy Council* (*u. s.*).

[5] J. P. Collier, *History of English Dramatic Poetry* (1831[1], 1879[2]), 305, 329–30, is, so far as I know, the first to make the assumption as a matter of course. Since then it has been accepted as fact by Halliwell-Phillips, *op. cit.,* I, 367ff.; Sidney Lee, *A Life of William Shakespeare* (5th ed., 1905), 219–20; Karl Mantzius, *A History of Theatrical Art* (translated into English by Louise von Cossel, 1904), III, 8, 19, 69ff.; and nearly every one who has touched the field. Recently the assumption has been used as an integral part of a dissertation for the

theory. Presumably it arises out of attacks of Puritan pamphleteers on the theatres, and the general knowledge that Puritanism was a strong and growing element which steadily more and more had to be reckoned with in matters of church and state. Puritanism was always ascetically opposed to games, plays, and amusements as ungodly. As early as 1569, for example, a Puritanic pamphlet sharply attacks Elizabeth for using the Children of the Chapel in theatrical performances.[1] The years from that time on are strewn with lost waifs of opposition to theatres.[2]

But are these conditions an adequate explanation of the official manoeuvers in theatrical regulation from 1597 to 1603? The Queen was not Puritan, nor were her privy councillors, nor were the several Lord Mayors, nor the city council of London. Yet these are the sources of the actions. There is no documentary evidence of any other.

We find, for example, the Lord Mayor and City Council on certain occasions asking for general orders of suppression, and the Privy Council in the Queen's name giving, not the general orders solicited, but instead very definite and specific orders against only the public theatres,[3] which in turn the same city officials who made the solicitations refuse to carry out.

This is not Puritanism. Puritanism would have been quick to embrace the opportunity to enforce the slightest restriction against any theatre.

Again, a little over two years after the most drastic of all the orders of the Privy Council under Elizabeth, we find that same body as constituted under James not merely revoking its own acts of 1600 and 1601, but even commanding the City and other officials to allow the very conditions they had in the closing years of Elizabeth so vigorously attempted to restrict.[4]

doctorate by E. N. S. Thompson, *The Controversy between the Puritans and the Stage* (*Yale Studies in English*, ed. A. S. Cook, 1903, XX), particularly on pages 123–27. F. G. Fleay, *A Chronicle History of the London Stage* (1890), 161, saw the error of this common assumption, and recognized a conflict of City and royal authority, without however reaching the cause.

[1] *The Children of the Chapel Stript and Whipt* (1569). See *supra*, 4[1].

[2] See a collection of these touching the Theatre and Curtain to 1607 in J. O. Halliwell-Phillips, *op. cit.*, I, 368–71, 354, 365. See also E. N. S. Thompson, *op. cit.*, 40 *sqq.*

[3] See the orders of 1597, 1600, 1601, *infra*, 152–53, 156, 160–61.

[4] See the order of 9 April, 1604.

Instead of having any relation to Puritanism, these instances rather exemplify the action of officials in the one case in carrying out the will of Elizabeth and the very different will of James in the other.

I suppose Elizabeth in affairs generally felt the need of taking Puritanism into account.[1] This she generally did by steering around it. Incidental traces of such seem evident in the quiet nature of her permissions for establishing and conducting Blackfriars,[2] and again in the disposition of the consequent Clifton affair.[3]

But the causes of the Queen's official attitude toward the theatres lay not in Puritanism, but in her own purposes.

Elizabeth, always a patron and lover of the drama,[4] had some definite notion of what the theatre should be. Not the completeness nor the incompleteness with which her notion was executed by officials, but her purpose therein is the point of main concern in this consideration.

Upon the numerous public theatres, particularly those of second-rate sort, the Queen looked with no more favor than did the City.[5] The Lord Mayor and aldermen attempted reformation by

In E. Malone, *An Inquiry* &c. (1797), 215; J. O. Halliwell-Phillips, *op. cit.*, I, 310. Original MS. in Dulwich College. See also G. F. Warner, *Catalogue of the Manuscripts and Muniments of Alleyn's College of God's Gift at Dulwich* (1881), 26–27, showing J. P. Collier's forgeries in this document as printed in his *New Facts Regarding Shakespeare* (1835).

In this act of 1604 the Privy Council specifically commands the Lord Mayor and the Magistrates to allow the Globe, Fortune, and Curtain unrestrained liberty, expressly mentioning and revoking the restrictive and suppressive orders of 1600–1601 thus:—"without any lett or interruption in respect of any former Letters or Prohibition heretofore written by us to your Lordship," &c.

Blackfriars is here not mentioned, because it was not included in the famous orders of 1600–1601.

See further complete work, vol. I. *Et infra*, 152–53, 156, 160–61[1].

[1] Some of the complaints against the theatres originated with the church. Which however was a long ways from Puritanism. But the church of St. Saviors in Southwark, the district in which most of the public theatres then were, in 1600 accepted them as fixed institutions, and sought to use them as means of church support through tithes. —See extracts from Parish-registers, in Chalmers, *Farther Account*, &c., in *op. cit.*, III, 452. *Cf. sup.*, 4.

[2] *Supra*, 70–71.

[3] *Supra*, 81–83; *infra*, 159.

[4] Even in her school-days she translated a part of one of Seneca's dramas into blank-verse,—the first example of blank-verse in the English.

[5] ". . . forasmuch as it is manifestly knowen and graunted that the multitude of the saide houses and the mys-government of

driving the theatres out. The Queen attempted reformation by fostering meritorious exclusiveness.[1] Her declared purpose was to reform abuses and increase the usefulness of the stage.[2]

In carrying out her notion the Queen established a restrictive law on strolling players. She established the Blackfriars, which, whether so intended or not, became at once the envy and the model of the time. She fostered the privacy of Paul's. She attempted to suppress the less worthy of the public theatres, and to put the Globe and Fortune on the basis of exclusiveness their companies merited.

Had Elizabeth's notions met with full support from even those who most pretended to want reform, the inferior theatres would have been suppressed, and the necessarily high prices would have shut out the troublesome rabble from the Globe and Fortune as completely as from the Blackfriars. This would at once have corrected the evils complained of by the City, and at the same time thereby have disarmed the City of the pretentions it was using merely as a cover for a very different contention.[3]

How the City authorities and the public theatres felt about it we shall see.

them hath bin and is dayly occasion of the ydle, ryotous and dissolute living of great nombers of people, that, leavinge all such honest and painefull course of life as they should followe, doe meete and assemble there, and of many particular abuses and disorders that doe thereupon ensue;

[1] [This is shown by her acts next noticed, and by her declaration in the words next following the quotation *supracit.*:] "and yet, nevertheless, it is considered that the use and exercise of such playes, not beinge evill in ytself, may with a good order and moderacion be suffered in a well-governed state, and that her Majestie, beinge pleased at somtymes to take delight and recreation in the sight and hearinge of them, some order is fitt to be taken for the allowance and mayntenaunce of such persons as are thought meetest in that kinde to yealde her Majestie recreation and delighte, and consequently of the houses that must serve for publike playinge to keepe them in exercise.

[2] [This is best shown by her acts. But the declaration is in the concluding next words of the preamble quoted above in notes 1 *et supra:*] "To the ende, therefore, that both the greate abuses of playes and playinge-houses may be redressed, and yet the aforesaide use and moderation of them retayned, the Lordes and the reste of her Majesties Privie Counsell, with one and full consent, have ordered" &c.—Preamble to the order of the Lords of the Privy Council *for the restrainte of the imoderate use and Companye of Playehowses and Players,* in *Registers of the Privy Council,* Whitehall, 22 June, 1600. In J. O. Halliwell-Phillips, *op. cit.,* I, 307–8, and George Chalmers, *Farther Account* &c., in *op. cit.,* III, 453.

[3] *Infra,* 161[1].

The beginning of the Queen's reformatory purpose shows itself during Burbage's remodeling of the Blackfriars Priory-house into a theatre, in the latter part of 1596. Whether she intended then to have the Children of the Chapel established there, or whether Burbage purposed to use it in place of the Theatre, the lease of which was just expiring, does not affect the present consideration. The new establishment was at least to be in a most aristocratic neighborhood, and its exclusiveness and privacy were assured. Hence, when certain petitioners in November, 1596,[1] appealed to her through the Privy Council to suppress Burbage's project, the request was ignored.[2]

The next appearance of definite plans was in the wholesome lopping off of the nuisance of unlicensed strolling players by the sharply restrictive law of 1597 reducing and confining the number of companies to those under noble patronage.[3]

Act now succeeds act along the line of one clear purpose. Whatever may have been the original plan or expectation in building the Blackfriars theatre, the Commission for taking up children issued to Nathaniel Gyles,[4] the operations of which we have seen,[5] settles the question as to what determination the Queen had reached by July 3, 1597, the date of the Privy Seal.[6] It is not likely that Gyles lost any time in collecting a company of children, nor that the City authorities and the public theatres were unaware of the new state of affairs.

July 28, 1597, within a month after the Privy Seal, and two weeks after the Patent,[7] doubtless while Gyles and Evans were collecting and organizing the new children-actors, the Lord Mayor asked the Privy Council for orders to suppress plays "as well at the Theatre, Curten, and Bankside, as in all other places in and about the Citie."[8]

[1] *Supra*, 17[5].

[2] *Supra*, 18[2], 53, 153–54[2], 161[1].

[3] The statute of 39 Elizabeth (1597) declares that "all common players of interludes wandering abroad, other than players of interludes belonging to anie baron of this realme, or anie other honourable personage of greater degree, to be authorized to play under the hand and seale of arms of such baron or personage, shall be adjudged and deemed rogues and vagabonds."

[4] *Supra*, 60[1].

[5] *Supra*, 70–72, *et sqq.*

[6] *Supra*, 60[1].

[7] *Supra, ibid.*

[8] See letter in J. O. Halliwell-Phillips, *op. cit.*, I, 356–57.

The designation "Theatre, Curten, and Bankside" included all the public theatres then in existence.[1] The only "other" known theatre "in or about the Citie" in 1597 was the private establishment of Blackfriars.[2] The Privy Council so understood it, and immediately, on the same day, sent a reply "in her Majesty's name" expressing "her Majesties pleasure and commandment" for drastic measures against the "common playhouses," thereby excluding the private theatre of Blackfriars, the suppression of which seems to have been the desired object of the request. The Theatre and Curtain are specifically named. They shall be dismantled and made unfit for further use as places for acting. All other "common playhouses"[3] are to be restrained until Allhallowtide.[4]

In response to this order the Lord Mayor and City Council did nothing, although their request had exhibited great anxiety for power to act.

This is the beginning of what seems to be a political game of chess, with the theatres as pieces.

The City had long before driven the theatres out of its precincts. Still the City authorities, always jealous of power and craving more, wished to control them. Still more, they wished to establish their long-contested claim to civic control of the precincts of Blackfriars. The establishment of a theatre within the liberties of Blackfriars gave them renewed eagerness. Permission granted to control all theatres, and therefore this theatre,

[1] The Theatre and Curtain were on the north (Middlesex county) side of the Thames, and north of the City "in the fields." The Swan, Rose, Bear Garden, and Newington Butts were on the Bankside (south or Surry county side). The other Bankside theatres were built at later dates, the first Globe, 1599; Hope, 1613; new Globe (after the fire) 1613–14. Of the later public theatres only the Fortune (1600), in Golding-lane, and the Red Bull, St. John's street, were in Middlesex co.

[2] It is not known whether Paul's was reopened by 1597 or not. The date of reopening is usually taken to be 1600. But I find evidence of playing there in 1598. (See complete work, vol. II., under *Plays*.) It is probable that Paul's soon opened as a result of the establishment of Blackfriars.

These and all other later private theatres were on the north (Middlesex county) side.—Whitefriars (*ca.* —?); Cockpit (*ca.* —?), rebuilt as Phoenix (1617) and known oftener as Drury Lane theatre; Salisbury Court (1629).

[3] *I. e.*, Swan, Rose, Bear Garden, and Newington Butts, on the Bankside.

[4] See the order of the Privy Council, July 28, 1597, published in *Acts of the Privy Council, 1597* (ed. J. R. Dasent, 1903), 313–14. Also in J. O. Halliwell-Phillips, *op. cit.*, I, 356.

would be a tacit admission of the City's right to full control in Blackfriars in other matters hitherto denied by the Crown. They had long claimed that precinct for their own.[1] Although they failed to establish their claim they kept tenaciously insisting upon it.[2]

The attitude of the City authorities during these five and a half following years seems to be this. They insist upon their claim of control of precinct and theatre. If the Queen denies it, and even establishes and maintains a theatre there contrary to their wishes, they will not in turn aid her to regulate the abuses in the public theatres, even after they have asked and received authority to act, and even though to act accordingly would be to their own civic advantage and welfare. They will use the one as a lever against the other.[3]

The Queen on the other hand goes ahead with her purposes. She would gladly control the abuses in the public theatres, cut off the unworthy, and raise the rest in moral tone to at least the rank of select exclusiveness. So she issues orders accordingly. If however the community most immediately concerned does not execute the orders even after asking for them, she can hardly

[1] See in Guildhall Record Office *Letter-Book Z,* fol. 23–28. This lengthy historical document, dated 27 January, 1579, has never been printed. It is a vigorous brief with long arguments and citations on the part of the City to prove both Blackfriars and Whitefriars parts of the City of London, and not independent liberties responsible only to the Crown. It gives much of the history of both precincts, and is also an admirable document in the history of the development of municipal powers. The attempt at possession however failed. See further *infra,* 154[2].

For claims on the side of the Blackfriars inhabitants in the long controversy, see documents cited *supra,* 21[1].

[2] Failing of success with Elizabeth, they persisted in their efforts under James I. In 1608 they made a particularly vigorous effort, with failure as the result.—See J. P. Collier, *op. cit.,* I, 398–99, where is cited a document found at Bridgewater House on this effort in which the case of 1579 (*u. s.,* 154[1]) is used as a basis. This is the only genuine document in the folio of six in which it is found. See exposure in N. E. S. A. Hamilton, *An Inquiry into the Genuineness of the MS. Corrections in Mr. J. P. Collier's Annotated Shakespeare, folio, 1632; and of certain Shakespearian documents likewise published by Mr. Collier* (1860), 109.

In 1615–17 the City had gained sufficient ground to suppress Rossiter's attempt to build another theatre in Blackfriars precincts (*cf.* complete work, vol. I), and, emboldened thereby, tried in 1618–19 to suppress the Blackfriars theatre of present interest (*u. i.,* 161[1]). See Order of Suppression, 1618–[19], *u. s.,* 17[5]–18.

[3] *Infra,* 161[1].

undertake forcible measures. But she can do much by carrying out her own royal purpose in giving countenance and support to a theatre for the better sort of patrons and recognizing only such of the public theatre companies at Court as have chief merit. And her high example and exclusive recognition work results despite the City's attitude.

Within ten days after the above request and order of July 28, 1597, Nash's satirical *Isle of Dogs* was acted at the Rose. Temporary restraint of that theatre, not by the City officials to whom the power was just granted but by the Queen's Court, immediately followed. The restraining order was recalled August 27, and the Rose was allowed to go on.[1]

Within the next six months we find that definite shape to the Queen's plans, as outlined above, which she pursued to the last.

February 19, 1597–[8], Queen Elizabeth caused her Privy Council to send letters to the Master of the Revels and Justices of Middlesex and Surrey, in which we learn the Chamberlain's company, to which Shakespeare belonged, and the Admiral's players under the Henslowe-Alleyn *régime,* have been specially licensed and retained for her service.[2] All others are to be suppressed. So far as she was concerned, no other public companies should have recognition of her patronage or license. None did. These are the only men's companies that appear thereafter for five years at Court,[3] with the exception of one single play by Derby's men, Shrove Tuesday, February 14, 1600.[4]

Between 28 December, 1598,[5] and about August, 1599, the Burbages, having torn down the Theatre, used its materials in build-

[1] See records in Henslowe's Diary (ed. Collier, *Shakesp. Soc. Pub.,* 1845), 94, 98, 99, 258. Also in J. P. Collier, *op. cit.,* I, 295–97.

[2] See letter from original document in *Acts of the Privy Council, 1597–98* (ed. J. R. Dasent, New Series, 1904), XXVIII, 327. Also in J. P. Collier, *op. cit.,* I, 298.

[3] For official records of the Court-payments to these two companies, 1598–1603, see *Extracts from the Accounts of the Revels at Court* (ed. P. Cunningham, *Shakesp. Soc. Pub.,* 1842), *Introduction,* xxxii-xxxiv.

[4] For record of payment see *Acts of the Privy Council, 1599–1600* (ed. J. R. Dasent, New Series), XXX, 89. Also in George Chalmers, *op. cit.,* III, 450.

F. G. Fleay, *A Chronicle History of the London Stage* (1890), 122, says the date of playing was Febr. 5; p. 133, Febr. 7. But by the Baroni Easter-table it is Feb. 14, 1600.

[5] *Supra,* 28[8].

ing the Globe on the Bankside. January 8, 1599–[1600][1] the Fortune was begun in Golding-lane on the opposite side of the City to the north. During the course of its construction, complaints against the theatres were renewed. We are not told by contemporary records whether the complainants were City officials or not. The common modern assumption that they were Puritans is gratuitous.[2]

June 22, 1600, the Privy Council in response to these complaints issued orders for carrying out her Majesty's plans[3] as outlined in the order of 19 Feb., 1597–[8]. Only the two companies there specified and their respective new houses, the Globe and Fortune, are to be permitted. But the idea of exclusiveness was extended in a way that displeased even these two favored companies. They were to be permitted to act but twice a week instead of daily as hitherto.

The Lord Mayor and other authorities made no more effort to enforce this order than the one of July 28, 1597.

I must here call attention to an important item. Of all the orders of the Privy Council from 1576 to 1597,[4] not one uses the word "common" or "public" in application to the theatres. The apparently hasty and choleric order of July 28, 1597,[5] is the first to employ either word thus. Within a space of eighteen lines, "common playhouse" is used twice, "publique place" twice, and general descriptions of public theatres coupled with the names "Curtain" and "Theatre" twice.

In the order of 1600 and the two letters accompanying it,[6] "common stage-plaies" is used three times, and "publique" is applied twice.

The first official use, antedating the Privy Council's use, of "common" thus, so far as I have found, is in the law of 1597 against strolling players.[7]

This distinction of "common" or "public" as a manifest differ-

[1] *Supra*, 29[8].

[2] See *supra*, 148[5]–50.

[3] See quotations *supra*, 150[5]–51[3] and the document *in extenso* in *Acts of the Privy Council, 1599–1600* (ed. J. R. Dasent, New Series), XXX, 395–98, 411. Also in J. O. Halliwell-Phillips, *op. cit.*, I, 307–8.

[4] For the whole series covering these dates see the government publications, *Acts of the Privy Council.* Those touching the Theatre and Curtain are collected in J. O. Halliwell-Phillips, *op. cit.*, I, 346–75, *passim.*

[5] *Supra*, 152–53.

[6] *Supra*, 156[3].

[7] *Supra*, 152.

entiation from the Blackfriars was quickly picked up by poets and patrons and was felt by the public theatres to have a touch of stigma in it. Shakespeare but represents the feeling of his fellows when he expresses his disrelish of the new distinction of "common stages," both officially and popularly applied.[1]

The attitude of the Queen towards public theatres and her patronage of Blackfriars cannot but have had large influence in accomplishing what her orders in the hands of the City authorities failed to accomplish. It at least was the means of depriving the public theatres of their best patronage and materially reducing their income, as their representatives charge. They could not as a result be a very friendly element.

It was with a full knowledge of these conditions that the Essex conspirators sought to enlist Shakespeare's company in their cause[2] early in 1601. And doubtless these conditions, more than the bribe of 40 *s.*, wrought persuasively with those actors of the Globe who were besought to present "the deposyng and kyllyng of Kyng Rychard the Second" on the following day, Saturday, February 7, 1601. Although wholly unaware of the Essex conspiracy, they were fully aware of Elizabeth's special antipathy to the theme involved,[3] and no amount of palliation can cover their culpability to that extent.

Although no legal proceedings were instituted against the Globe players, and within three weeks, on Shrove Tuesday, Feb. 24, they played, by previous arrangement, before the Queen, yet never after did good feeling exist on either side.

The items of the two following paragraphs in the chronology of events are of only incidental concern.

The Queen had the Paul's Boys at Court January 1, 1601, and the Children of the Chapel on February 6, and again on Shrove Sunday, February 22.[4] Her orders of March 11 following, for

[1] See further, *infra*, 176[1], 165[3].

[2] For documents in this affair see, at the Public Record Office, *State Papers, Domestic Series, Elizabeth*, CCLXXVIII, Nos. 78, 85; *Calendar* of the same (1598–1601) 575–78; J. O. Halliwell-Phillips, *op. cit.*, II, 359–62. Mr. Halliwell-Phillip's discussion of the case (I, 191–99) with added documents on the famous fatal insurrection of the following day, Sunday, Feb. 8, 1601, is very full.

[3] See J. O. Halliwell-Phillips, *op. cit.*, II, 359.

[4] See complete work, vol. II., *Plays at Court*. Also *cf. supra*, 115[1], 121[3]–22[1].

closing all theatres during Lent, with Blackfriars and Paul's specifically named,[1] has but one special significance. The Earl of Essex was to be executed,—his execution occurred March 25,—and the political state was unquiet. Hence it was well to close all places of public gathering, particularly those where influential sympathizers of the popular Essex might assemble. This unimportant temporary order of mere expediency,—whether merely for Lent or on account of Essex,—has nothing to do with the Queen's attitude and purposes toward the favored or the less favored theatres.[2]

May 13 (signed May 10),[3] 1601, the Privy Council issued a restraining order against the company playing at the Curtain on account of satirizing persons of prominence, but without attempting to enforce against it the order of 1600, by which the Curtain should nearly a year ago have been permanently suppressed. The present order does not touch the theatre, but merely deals with the company in this single offense. It is of present interest mainly because in the summer of the same year Jonson at the Blackfriars and Dekker at the Globe were waging their controversy of bitter personal satire without interference by the government.[4]

[1] A part of this order was printed by George Chalmers, *op. cit.*, III, 435. I give here my transcript of it from the original records in the Privy Council Office:—

Wednesdaye the xith of March 1600–[1]

A l*ett*re to the L. Mayo^{r} requiring him not to faile to take order playes wthin the Cyttie and the liberties, especyally at Powles and in the Blackfriers, may be suppressed during this time of Lent.—*Registers of the Privy Council, Elizabeth* (Dec. 7, 1600—Jan. 2, 1602), XVII, 119.

[2] One might be led to suppose so from the bare statement in F. G. Fleay, *op. cit.*, 160, and Hermann Maas, *Die Kindertruppen* (Diss. Göttingen, 1901), 12.

[3] In quoting this document, J. P. Collier, *op. cit.*, I, 305, and J. O. Halliwell-Phillips, *op. cit.*, I, 368, give the date as May 10. I find May 13 in the original *Registers of the Privy Council, Elizabeth* (Dec. 7, 1600—Jan. 2, 1602), XVII, 193, at Whitehall. May 13 is also given in the recent official publication of the document in *Acts of the Privy Council 1600–1601* (ed. J. R. Dasent, New Series, 1906), XXXI, 341, 346. But see item (*idem*, 340) from the original records that it was *signed* the 10th and *bore date* the 13th. Is this significant?

[4] In this quarrel Blackfriars is regarded as being, through Jonson, the aggressor. Shakespeare later in the same year, in *Hamlet*, not only administers censure for an unwise partisanship in allowing the Children to be made instruments of quarrel, but charges more sharply that "the nation holds it no sin to tarre them to controversy." See further, *infra*, 171, 174 F$_1$, 180^{4}–81.

One of the important events showing Elizabeth's attitude is the Clifton case of Dec. 15, 1601. As already pointed out,[1] this looks like a shrewd political move tinged with Puritanism. Clifton's personal grievance,—a most minor affair at best, which was within the space of a day fully redressed,[2]—is a mere excuse for action. Personal grievances do not wait a year and two days for justice, and in this case waited no more than a day. These were troublous times politically. Besides, both City and public theatre were opposed to Blackfriars; and whether Clifton was or was not a willing instrument in furthering plans of others, the suspicion of it is not wanting.

Clifton's whole complaint is a covert attack upon the Queen's Commission to Gyles in its present permitted use for establishing and maintaining the Blackfriars. His waiting a year gives emphasis to this clear fact. Clifton knew, as everybody else in London knew, that this theatre was conducted under the Queen's patronage. It was upon that knowledge that action was taken. His complaint has no point or purpose but the suppression of the theatre, or the embarrassment of the Queen in her plans.

Elizabeth's course in the case was as judicial as just and consistent. She took ample notice of the minor matter of personal injury by causing Evans in the Court of Star Chamber to be deprived of the official position she had given him. It could never have been within her thought to do violence to gentlemen of the realm by forcible impressment of their children, nor to have the children abused or misused who were to serve her. She had not wished it, nor could she or her Court countenance it. Thus she redressed the grievance upon the exact basis of its pretenses, and at the same time consistently with a just sovereignty. The chief burden of complaint however, made as if subsidiary to the personal injury, was treated on the lines of that pretense, and consequently disregarded.[3]

As a result, the Blackfriars went on, as we have seen, without interruption, and on the same basis as hitherto.[4]

During the Christmas season of 1601–[2] the customary Court-entertainments were for the first time in many years omitted. No

[1] *Supra*, 79.
[2] *Supra*, 78–79.
[3] *Supra*, 81–83.
[4] *Supra*, 87–88, *et passim*.

plays were presented there.[1] If the cause of this did not lie in the Queen's displeasure with the public theatres, the suggestion of it is at least difficult to repress. The *Richard II* affair in behalf of the Essex conspirators was less than a year in the past,[2] and the Clifton attempt was but recently made.

The Queen however found other amusement, and amply showed by her presence at Blackfriars December 29, as already noticed,[3] her clear purpose. This particular event, coming just a fortnight after the Clifton complaint, and publicly marking its failure to suppress Blackfriars, seems to have had some significance in official London. The City may not have had an interest in Clifton's attempt to suppress Blackfriars. But if he had succeeded, the City as represented by the Lord Mayor would at least have been spared the Janian deification of features induced by the strain of moral solicitude in its next acts.

On the next day after the above event of the Queen's attendance at Blackfriars, or at latest on the day after the next, the Lord Mayor renewed the City's complaint, indicating that the number of playhouses and plays had greatly increased, and asking for power to regulate them![4] This looks like a most strange request in the light of the fact that this very power had been specifically granted, with the command also to exercise it, in the order of June 22, 1600. It seemed thus also to the Privy Council, who in their reply of the same or following day, December 31, 1601, very courteously called attention to the inconsistency, and issued a sharp command to the City and justices to enforce, not some new order, but the former order of a year and a half ago.[5]

[1] I do not know the authority of Mr. J. O. Halliwell-Phillips, *op. cit.*, I, 201, for saying that Shakespeare's company at this season presented four plays before her Majesty at Whitehall, one of which was probably *Twelfth Night*. He does not get this from the *Registers of the Privy Council*, for the officials at the Office of the Privy Council inform me that all records from January 2, 1602, to 1613 were burned in the fire of Jan. 12, 1618. Also, the *Office Book of the Treasurer of the Chamber* shows no plays for this season, according to the *Extracts from the Accounts of the Revels at Court* (ed. P. Cunningham, *S. S. Pub.* 1842), *Introduction*, xxvii-xxxiv.

F. G. Fleay, *op. cit.*, 123, likewise was unable to find any Court-plays for 1601–[2].

[2] *Supra*, 157.

[3] *Supra*, 95–97.

[4] The only knowledge of the date and contents of this request is contained in the Privy Council's answer (*u. i.*, 160[5]).

[5] See the two documents, one to

The City's solicitation for power when they already had it is clearly a pretense inspired by some new hope of success in its old contention. The Privy Council's surprise that during the past year and a half nothing had been done to carry out the Queen's order is simply a counter pretense; for the theatres were a large element in the social life of London, and their doings were known to no one better than to the Queen and her Court. Both actions are simply secure moves on the chess-board.

The City authorities finding no change of front and getting not the concession they craved concerning Blackfriars but a repetition of the definite and specific order of 1600 for restrictions of only the public theatres, quietly let the order die, just as in the former cases.[1] There is no evidence that they made the slightest effort at restraint.[2]

the City and one to the county magistrates, both dated Dec. 31, 1601, in J. O. Halliwell-Phillips, *op. cit.*, I, 308–309.

[1] That it was the Queen's private establishment in liberties within the City yet outside its control that irked the municipal authorities is proved over and over by circumstances, as presented in the preceding pages. A clinching proof is their attitude in 1618–[19]. Emboldened by their success in securing the suppression of Rossiter's theatre in the Blackfriars precincts, 1615–17, they set about to find a way to carry out their long-cherished desire to suppress the present Blackfriars theatre, and thereby gain a conceded right of control looking toward the full establishment of their long contention.

The City now (1618–[19]) decided that the Blackfriars was a "public" theatre and therefore fell under the late Queen's orders of 1600–1601! So they issued a command suppressing it in accordance with those long-dead orders!!—Eighteen years after!! Nothing could have been more absurd, for in the first place the Queen's orders in question had never been enforced against any theatre even at the time of issue, and in the second place the Privy Council under James in 1604, April 9 (*u. s.*, 149[4]–50), had revoked those dead orders. Moreover, the Queen had in the 1600–1601 orders exempted the Blackfriars by astutely specifying "public" or "common" theatres, thus preventing the City's desired operation against her private theatre.

The dog-in-the-manger figure of the City Council from 1597 to 1603, and their sudden awakening eighteen years after to enforce those old orders,—even after long revoked,—against the very theatre they shielded, but against no other, is as comical as it is convincing and final proof of the conditions as I have analyzed them.

See further on earlier phases of the City's contention and the order of 1618–[19], *supra*, 21[1], 53, 153–54[2].

[2] With the assistance of Dr. Sharp, Superintendent, I have searched the City archives at the Guildhall in vain for evidence of action in any one of the several foregoing orders. If the City had acted in any single instance, there would certainly be some sort of trace left, as in the suppression of Rossiter's theatre in the same precints in 1615–17; in the effort to

This was the last move on either side.[1]

Nevertheless, I am willing to take the evidence of Shakespeare and Jonson that the public theatres were steadily losing ground. The cause is rightly ascribed in *Hamlet,* as discussed in a later chapter.[2]

During this period of five and a half years, the public theatres enjoyed the anomalous distinction of the City's tacit favor and the Sovereign's explicit disfavor. There is no other such period in their history. It amounts to an alliance of municipal and theatrical enemies in a common cause against nationally enforced progress in theatrical conditions.

suppress the Blackfriars in 1618-[19]; and in other cases touching on theatres, games, &c.

This is negative but not less sure proof of the City's inaction in executing the orders they themselves asked for. Positive proof is the well-known fact that various companies were acting unrestrained by the City in the various public theatres not only in 1602, but throughout this whole period of 1597-1603.

[1]The Privy Council's order of March 19, 1602-[3], which I have not hitherto seen in print, might in disconnected relation be taken to be another move along similar lines. But it has reference to another matter:—

"[1602-[3], March] 19. Letters to the Lord Mayor and Justices of Middlesex and Surrey, for the restraint of Stage plaies till other directions be given."—From MS. *Camden Society Transcript of Privy Council Records,* now preserved at Privy Council Office. This transcript of extracts or abstracts of the Registers of the Privy Council destroyed by fire (*u. s.,* 160[1]) is taken from Brit. Mus. *Add. MS.,* 11402.

As appears from a letter in the same MS. sent by the Council the next day to "Sondrie Earles and Barons" to "take all possible care wee can for the preventing of disorders and for the continuance and preservation of tranquilitie and peace in all parts of the Realme," &c., this order closing the theatres temporarily was made because of the fear of an uprising in case of the Queen's expected death. Five days after the order, 24 March, 1602-[3], the Queen passed away.

[2]*Infra,* 173-82.

CHAPTER XIII

RELATIONS OF BLACKFRIARS TO OTHER THEATRES, POETS, AND PLAYERS

THE Blackfriars Boys, led by the young Roscii Pavy, Field, Underwood, and Ostler, with their novel entertainments of music, singing, masque, and drama under special favoring influences and select auditorial privileges, found that following that made theirs recognized as the foremost theatre of London. They became as a result the objects of imitation and envy.

This much we have evidence of. But the detailed relations cannot now be fully worked out, even so far as the scattered remains of evidence are available. It will never be possible to get at the full particulars, for the probable evidences have perished. I mean contemporary plays containing satires and local hits. Some of this sort we know to have been suppressed. We know also that it was then as now the custom to introduce local drives not connected with the play. The new evidence offered later in connection with the *Byron* tragedies by Chapman would be sufficient in itself to prove this.[1] But the field cannot here be entered upon.

Henslowe's *Diary* shows that approximately two-thirds of the plays written by the numerous poets employed by him, for practically every public theatre but the Globe, have perished. Nearly three times as many dramatists wrote for Henslowe as for Blackfriars, Globe, and Paul's combined.[2] The number of dramas is

[1] See complete work, vol. I.

[2] The known dramatists for 1597-1603, in chronology of their first appearance at their respective theatres, are:—

(*a*) *Blackfriars.*—Jonson, Chapman, Marston.

(*b*) *Globe.*—Shakespeare, Jonson, Dekker, W. S.

(*c*) *Paul's.*—Marston, Middleton. It is not known that any of Percy's plays were acted here.

(*d*) *Fortune, Curtain, Rose,* and possibly *Swan, Bear Garden,* and *Newington Butts,* for Henslowe. In chronology of first mention in Henslowe's *Diary.*—Dekker, Chettle, Juby, Day, Haughton, Drayton, Hathaway, Rankins, Porter, Nash, Jonson, Munday, Lee, Wilson, Chapman, Slater, Heywood,

in similar proportion. Those extant of the Henslowian class occupy generally the lower ranks of dramatic merit. If the fittest work of all dramatists survived, the lost plays perhaps could have been of mere historical value to us.

That this great category of lost plays most likely was rich in topical allusions has been quite generally recognized and in partial details worked out.[1] But the field yet awaits scientific research, with promise of large literary-historical rewards.[2] Among such allusions there could hardly have failed mention of a state of affairs closely affecting both poets and theatres. This and the rigid laws against presenting on the stage matters touching the official state suggest that the sharp attack in *Hamlet,* spoken on the stage with impunity, may not have been the most severe of its kind. I hesitate to go farther into the alluring field of speculation, preferring to await results of research.

The losses through Henslowe, as above noticed, sufficiently account for the fact that the evidences of theatrical relations by way of local allusions in dramas that have reached us belong mainly to the non-Henslowian plays,—those of the Globe, Paul's, and Blackfriars. The foremost of all these is the famous children-passage in *Hamlet,* reserved for a special chapter.[3] Besides this there are numerous evidences, direct and indirect, only a part of which are taken up in the following paragraphs.

The passage in *Hamlet* (late 1601) showing the drawing away of the genteel part of the audience to the more select Blackfriars, represents the condition not only in the Globe but in all the other public theatres. It is well supported by passages in other plays.

Pitt, Wadeson, Smyth, S. Rowley, Bird (Borne), Middleton, Webster, Singer.

Removing from this last list the names of Jonson, Chapman, Marston, and Middleton, who did their chief work for Blackfriars, Globe, and Paul's, it will be seen that the Henslowian writers are on the whole of a very inferior rank.

[1] See Sidney Lee, *The Topical Side of the Elizabethan Drama (New Shakesp. Soc. Trans.,* Series I, 1887), 11*sqq.* Also *cf. eundem, The Future of Shakespearean Research (The Nineteenth Century,* May, 1906) 763–78. This latter article gives practically the substance of the former.

[2] Since writing these paragraphs my own researches have brought to light great bulks of material in this field,—too extensive to find itself in print yet,—but of a value quite disproportionate to the bulk. These documents include the sources of hitherto unknown dramas by Chapman, Dekker, Webster, Ford, and others, with certain fragments of dramas,—all purely local.

[3] *Infra,* 173–85.

In *Poetaster* (*ca.* April, 1601) Histrio, a player standing for the spirit of the public theatres in general and of the Globe in particular, is made to declare this condition of leanness as a result of the lack of gentleman patronage.[1] In *Cynthia's Revels* (*ca.* April, 1600) the better classes are represented as avoiding the public theatres because of the immodesty and obscenity in the plays there, and attending Blackfriars where there was a more wholesome vogue.[2]

By a comparison it will be seen that the Blackfriars plays of 1597–1603 are freer from such offensive qualities than the plays of any other theatre except Shakespeare's at the Globe.

Again, in *Poetaster* the public theatre audiences on the Bankside are ridiculed as composed of "all the sinners of the suburbs."[3]

[1] Histrio is speaking of the play Horace [Jonson] supposed was in progress against him under the hand of Demetrius [Dekker] thus:—

"O, it will get us a huge deal of money, captain, and we have need on't; for this winter [1600–1] has made us all poorer than so many starved snakes: nobody comes at us, not a gentleman nor a ——."

—*Poetaster*, III, i., Jonson's *Works* (ed. Gifford-Cunningham), I, 234*b*-235*a*.

[2] In the *Induction* to *Cynthia's Revels* a genteel auditor who has come to Blackfriars because displeased with the plays offered by the public theatres is giving advice to the Children and their poets as to what to avoid. His part is spoken thus:—

"3 *Child* [Sal Pavy].— . . . It is in the general behalf of this fair society here that I am to speak, at least the more judicious part of it, which seems much distasted with the immodest and obscene writing of many in their plays."

Then he goes on to advise their poets what to avoid. This part is not aimed as satire at the Boys, nor at their poets (Jonson himself and Chapman), but is a shaft shot over their shoulders at the public theatres, thus:—

"Besides, they could wish your poets would leave to be promoters of other men's jests, and to waylay all the stale apothegms, or old books, they can hear of, in print or otherwise, to farce their scenes withal. That they would not so penuriously glean wit from every laundress or hackney-man, or derive their best grace, with servile imitation, from common stages, or observation of the company they converse with; as if their invention lived wholly upon another man's trencher. Again, that feeding their friends with nothing of their own, but what they have twice or thrice cooked, they should not wantonly give out, how soon they had drest it; nor how many coaches came to carry away the broken meat, besides hobby-horses and foot-cloth nags.

2 *Child* [Jack Underwood].—So, sir, this is all the reformation you seek?

3 *Child*.—It is; do not you think it necessary to be practiced, my little wag?

2 *Child*.—Yes, where any such ill-habited custom is received."

This last statement, as the spirit throughout, shows the "custom" was not "received" at Blackfriars, but on the "common stages," whose practice is to be avoided.

[3] Histrio, speaking of "Humours, Revels, and Satire," is made to say, "They are on the other side of Tyber [*i. e.*, at Blackfriars]: we [pub-

Jonson's *Prologue* to *Cynthia's Revels* is one of the best examples showing the select character of the Blackfriars audience, before whose learned judgments Jonson is especially proud to have his plays appear.[1] Dekker in *Satiromastix* (summer, 1601) enviously replies to this with the flirt of a sneer in which nevertheless there lies the tacit admission of the difference in question.[2] The declaration in the *Prologue* to *Eastward Ho* (spring, 1605) that the Blackfriars has ever been imitated[3] refers mainly to the Elizabethan period. We know further from *Hamlet* that the Boys were "now the fashion," and it is not likely that other theatres and poets failed to get as nearly into fashion as possible.

The general evidence is sufficient to establish the fact of imitation, but details do not lie so patent. The final investigation of the thesis involved must be reserved for later research. I think the evidence will show that the new sort of plays introduced at

lic theatres] have as much ribaldry in our plays as can be, as you would wish, captain: all the sinners in the suburbs come and applaud our action daily."—*Poetaster,* III, i, *op. cit.,* 232*a*.

[1] PROLOGUE

If gracious silence, sweet attention,
Quick sight and quicker apprehension,
The lights of judgment's throne, shine any where,
Our doubtful author hopes this is their sphere;
And therefore opens he himself to those,
To other weaker brains his labours close,
As loth to prostitute their virgin-strain,
To every vulgar and adulterate brain.
In this alone, his Muse her sweetness hath,
She shuns the print of any beaten path;
And proves new ways to come to learned ears:
Pied ignorance she neither loves nor fears.
Nor hunts she after popular applause,
Or foamy praise, that drops from common jaws:
The garland that she wears, their hands must twine,
Who can both censure, understand, define
What merit is: then cast those piercing rays,
Round as a crown, instead of honored bays,
About his poesy; which, he knows, affords
Words, above action; matter, above words.

—Ben Jonson, *Cynthia's Revels, Prologue.*

[2] Jonson is satirized under the name of Horace speaking thus in parody on the *Prologue* to *Cynthia's Revels:*—

"*Horace.*—The muses' birds the bees were hiv'd and fled,
Us in our cradle thereby prophesying
That we to learned ears should sweetly sing.
But to the vulgar and adulterate brain
Should loath to prostitute our virgin-strain."

[Italics in original].—Thomas Dekker, *Satiromastix,* in *Origin of the English Drama* (ed. Hawkins, 1773), III, 132.

[3] ". . . we have evermore been imitated."

Paul's by Marston and Middleton, displacing the "musty fopperies" the boys there had been presenting, owes somewhat to the influence of Jonson's and Chapman's plays at Blackfriars. The introduction of the masque within the play[1] and the general trend of realism in other theatres are also involved. The influences on Shakespeare,[2] as for example in *Hamlet*,[3] *The Tempest*,[4] and certain other plays after the period of the histories, as also on Beaumont and Fletcher, promise peculiar interest. But parts of the field, affording only internal evidence and circumstantial suggestion, are too shadowy to be alluring.

It may seem a more tenable thesis that most of the Blackfriars plays are chargeable with imitation. Chapman, the chief poet there, took from Shakespeare materials or suggestions in every play he wrote for the Chapel Children.[5] But he did not do this in the plays he wrote before associating himself with Blackfriars. The extent of his indebtedness seems to be as follows.[6]

Chapman seems in each instance to have used Shakespeare's latest play. In *Sir Giles Goosecap* (*ca.* fall, 1600) the title character in his ninniness and misuse of words looks like the notable character of *Much Ado about Nothing* (*ca.* 1599) Constable Dogberry in excessive leanness of absurdity made lanker by the extremities of idiocy protruding from the dress of knighthood. In *The Gentleman Usher* (*ca.* summer, 1601) Bassiolo seems

[1] *Cf. supra,* 118–22, 122[2]–23.

[2] The long dominant supposition that Shakespeare by virtue of transcendent genius was only the giver, not likewise the receiver, of dramatic influences is fortunately passing. Among the serious attempts to reach the truth in one part of the field may be mentioned, despite its defects, the work of A. H. Thorndike, *The Influence of Beaumont and Fletcher on Shakespeare* (1901).

All evidences tend to show that no dramatist of his time influenced his fellows more than Shakespeare did, and none was influenced by them more than he. Professor Dr. Emil Köppel, of the University at Strassburg, who has made extensive researches in the Elizabethan-Jacobean drama, says, with reference to the influence of Shakespeare, "Der weg des sammlers, der den spuren der wirkung Shakespeares nachgeht, wird so oft gekreuzt von lockenden pfaden, die zu Jonson laufen, dass ihm manchmal zweifel aufsteigen können, welchem der beiden männer die führerrolle zuzutheilen sei."—*Vorwort* zu *Studien über Shakespeare's Wirkung auf Zeitgenössische Dramatiker* (1905). *Cf. supra,* 123.

[3] *Cf. supra,* 15, 133; *infra,* 173–85.

[4] *Cf. supra,* 10[3].

[5] On the plays in question, except *Sir Giles Goosecap,* see also E. Köppel, *Quellenstudien zu den Dramen George Chapmans,* &c. (*Quellen und Forschungen,* Heft 82., Strassb. 1897).

[6] For evidences fixing the dates and further discussion see *Plays* in complete work, vol. II.

modeled after Malvolio of *Twelfth Night* (*ca.* 1600), while the title character of *M. D'Olive* (*ca.* Oct.–Dec. 1601) is Bassiolo developed. *May Day* (*ca.* May, 1602) contains an answer to the attack on Blackfriars in *Hamlet* (late 1601—early 1602)[1] in the form of satirizing parodies on the "To be" soliloquy and other parts. These read as if Chapman had heard *Hamlet* once or twice while *May Day* was in progress, and had caught the general trend. Acts III and IV contain bits of satire certainly made thus. The *Widow's Tears* (Sept., 1602) in overcoming of feminine scruples is mindatory of *The Taming of the Shrew* (early 1602?).

Did Chapman intend these character-extensions as ridicule of Shakespeare? Or did he simply find good comedial material here ready for further development? At any rate, even if it is proved that Chapman here imitated, that fact would not disprove that his and Jonson's plays at Blackfriars in turn were imitated. Both seem true. Opposition to a rival institution upon principle and imitation of its successes at the same time are not incompatible.

The opposition of the Globe to the Blackfriars is only typical of conditions in all the other public theatres. *Hamlet* tells us thus much. Dekker's "the puppet-teacher"[2] in *Satiromastix* (at the Globe, summer, 1601) is a thrust at the Boys as well as at Jonson. The minor reference in the *Prologue* to *Troilus and Cressida* (*ca.* 1602, late) can hardly be called friendly.[3] Paul's Boys and the Chapel Children in 1580–84 and at other periods had performed together. But under the new conditions Paul's and the public theatres made common cause against Blackfriars, and found a convenient means of expressing their attitude through furthering on their stages the personal quarrels of certain dramatists opposed to Jonson of the Chapel Boys' theatre.

I must here notice this incident, since it is connected with the theatrical conditions in hand.

[1] Written late 1601. First acted late 1601 — early 1602, doubtless at the Christmas season. See also *supra*, 86, and *infra*, 174–75, 182–84[1].

[2] "Hold, silence, the puppet-teacher speaks."—*Satiromastix, op. cit.*, III, 171.

[3] . . . "And hither am I come
A Prologue arm'd, but not in confidence
Of Authors pen, or Actors voyce."
This is in reference and reply to Jonson's armed Prologue to *Poetaster*, in which the public theatres, and particularly the Globe in the anticipated *Satiromastix* there, are

The personal quarrel between Jonson on the one side and Marston and Dekker on the other, conducted on the battle-field of the stage, was merely incidental to the general state, arising partly out of theatrical, partly out of personal relations. But had it not been fostered by the theatres it could never have been tolerated, could not even have come into existence before an audience. An institution does not easily lend itself as an organ of mere personal animus. It served the theatres as a temporary vent.[1]

The personal phases of the quarrel can be briefly stated, so far as they appear in literary form. They have been elaborately discussed by Fleay, Penniman, and Small, and treated somewhat by practically every literary historian or critic that has touched upon the period.[2] But as the main events have been given incorrect historical perspective by the confusion of chronology, I summarize certain conclusions here in accordance with the dates established upon final evidence under the list of plays, following.[3]

The first traces are not vicious, and consist of literary jibes. In *The Scourge of Villainy* (Stationers' Register, Sept. 8, 1598) Marston glanced at Jonson through the character of "judicial Torquatus" in the address "To those that seem judicial Perusers," and expected that Torquatus would vouchsafe the new volume "some of his new-minted epithets (as real, intrinsecate, Delphic)," without understanding a word of it. Late in the same year, Marston in his revision of *Histriomastix* (1598) reshaped

represented as so hostile as to require such armed protection of both author and actors at Blackfriars.

[1] See further, *infra*, 180[4].

[2] The Rev. F. G. Fleay, *A Chronicle History of the London Stage* (1890), *passim*, and *A Biographical Chronicle of the English Drama 1559–1642* (1891), I–II, *ad loc.*, follows the ministerial method of finding allegory in the plays concerned, and consequently arrives at romantic identifications of characters. J. H. Penniman, *The War of the Theatres* (1897), likewise finds untenable identifications. R. A. Small, *The Stage-Quarrel between Ben Jonson and the so-called Poetasters* (1899), devotes a large part of his volume to disproving the positions of his predecessors, and on the whole is sound in his own identifications but wide of the mark in his datings.

By all these scholars the quarrel is given wrong aspects through nonsequential relation of plays and events. The personal side is incorrectly regarded as having considerable independent importance instead of being subordinate to the larger conditions that made it possible.

[3] See the respective titles under *Plays*, complete work, vol. II, for all evidences and full treatment in elaborate detail, with extensive references.

the features of Chrysogonus and gave them a few touches that must undoubtedly have reminded the audience of Jonson.

Jonson's *Every Man in his Humour* (*ca.* Aug.–Sept. 1598) had appeared before either of the above, and consequently contains no trace of the quarrel in even its mildest form. But his next play, *Every Man out of his Humour* (*ca.* Aug., 1599) replied to both of Marston's jibes by making a character, Clove, evidently introduced for no other purpose, talk fustian words culled out of *The Scourge of Villainy* and *Histriomastix*. Meanwhile, Marston had given *Antonio and Mellida* (*ca.* first half of 1599) to the stage at Paul's without a word of bickering against Jonson.

Jonson and Dekker during August and September, 1599, worked in collaboration for Henslowe on *Page of Plymouth* and *Robert II King of Scots*. Probably also Marston worked with them in September on this latter play.

Up to this time (Sept., 1599) there seems to be no serious personal feeling between Jonson and Marston. Dekker had not yet been in the least concerned. It is most probable that the intimacy of collaboration sowed the seeds of discord. Jonson's personality could brook little opposition. He had no patience with such as we know Dekker and his work to have been. But on Marston's side there appears as yet no rankling, for about Nov., 1599, appeared at Paul's his *Antonio's Revenge*, with no word directed at Jonson.

In September, 1599, Chettle, Dekker, and Haughton completed *Patient Grisell*, probably first acted *ca.* January, 1599–1600. The Emulo-Owen duel of this play is a clear imitation of Jonson's Brisk-Lentulo duel in *Every Man out of his Humour* that had appeared at least four months before. From Jonson's later attack (*i. e.*, in *Poetaster*) he apparently charged this imitation up as one of Dekker's plagiarisms.

Cynthia's Revels (*ca.* April–May, 1600) gives us the first real personal bitterness of the quarrel and its first importance on the stage. There Jonson caricatured some of the features of Marston in Hedon, and of Dekker in Anaides, while assuming to himself some of the general excellences of Crites. This was played by the Blackfriars Boys. Almost simultaneously Marston pre-

sented *Jack Drum's Entertainment* (*ca.* May, 1600) on the stage by the Paul's Boys, unfavorably representing Jonson as Brabant Senior and mentioning himself as "the new poet Mellidus."

There is no known cause in any existing drama or other writing by either Marston or Jonson for the sharp personal attacks of these two plays. As both appeared at practically the same time, neither is the cause of the other, and neither play refers to the other. The only explanation of the personalities seems to be that the close literary relations of August–September, 1599, had bred enmity between Marston and Dekker on the one side and Jonson on the other. The only explanation of the stage-publicity of these personal relations is the theatrical status that fostered it, as already discussed and as indicated further in *Hamlet*.[1]

A year later, Marston replied in his behalf to *Cynthia's Revels* by *What You Will* (*ca.* April, 1601) at Paul's, making some of Jonson's features unpleasantly prominent in Lampatho and himself assuming the better traits of "squareness" in Quadratus.

Simultaneously appeared at Blackfriars Jonson's *Poetaster* (*ca.* April, 1601), violently attacking Marston and Dekker as Crispinus and Demetrius respectively, while Jonson martyred himself as Horace. This attack is not in reply to anything in any of the former plays, but in anticipation of a lampoon that Jonson believed Marston and Dekker were preparing against him in a play to be presented at the Globe. There seems no explanation of this rabidness except that personal relations had become severely acute, and that theatrical conditions made such public exhibition possible.

Hitherto Dekker had made no reply to Jonson. But after *Poetaster* he flamed out with *Satiromastix* (*ca.* June–July, 1601). Marston seems to have furnished some of the fuel.

Jonson's final reply was his *Apologetical Dialogue*, "spoken only once upon the stage" and then by himself as "The Author," apparently in the spring of 1602.

This was the end of the personal quarrel on the stage. Jonson no more refers to it. Marston thereafter took Jonson's place as poet for the Blackfriars Boys, and in his *Dutch Courtezan* (fall–wint., 1602) and *The Malcontent* (spring, 1603) no reference is

[1] *Supra*, 158[4]; *infra*, 174, F_1, 180[4].

made to the recent unpleasantness. Absence of reference in these two plays is negative proof that the personal war-cloud had passed, by 1602. Positive proof is in the year 1604, when Marston dedicated *The Malcontent* to Jonson, and also wrote commendatory verses for *Sejanus*. Dekker, however, cherished ill-feeling as late as 1609, in *The Guls Horne-Book*.[1]

The quarrel in its personal aspects was of much less importance than usually supposed. So far as we can now identify them, it includes only these three men. But from Jonson's *Apologetical Dialogue* and from Dekker's address *To the World* in *Satiromastix*, we are led to believe that other poets and their theatres were involved. Doubtless they were. But as the plays have not come to light and are probably irretrievably lost, we can now say no more about them.

The attempt to identify Shakespeare on this personal side in *Troilus and Cressida* hardly needs refutation. Beyond the minor reference in the Prologue,[2] I find nothing in the play touching either the personal or the impersonal side.[3]

I have given this incident of the personal quarrel more space than its relative importance demands, but not more than seems required to put it into its proper perspective as a minor matter in the history of stage-relations.[4]

[1] See *supra*, 133[4], 140[3].

[2] *Supra*, 168[3].

[3] Scholars differ widely on the play. See for example, R. A. Small, *op. cit.*, 139–71; Sidney Lee, *A Life of William Shakespeare* (5th ed., 1905) 237[1]; R. Boyle, *Troilus and Cressida*, in *Englische Studien* (1902), XXX, 21–59.

[4] See further, *infra*, 180[4].

CHAPTER XIV

THE *HAMLET* PASSAGE ON THE BLACKFRIARS CHILDREN

THE Shakespeare student has already anticipated conclusions made possible by the documents treated in the foregoing pages. I have little more left to do than to transcribe those conclusions in the briefest possible manner.

Shakespeare's reference to the Children-players is at once the best known and yet the newest record touching contemporary stage conditions. Explanations have been attempted by every student of *Hamlet*.[1] These range from the guess of dilettanteism to the plausible hypothesis and occasional statement of fact.

Not only does the evidence now at hand explain practically every item in this passage, but in turn Shakespeare's record becomes available thereby as one of the most important contributions made to the history of this royally favored company of Children-actors at Blackfriars.

For purposes of comparison, I here subjoin the passage[2] as it appears in Q_1, Q_2, and F_1.

[1] For a convenient collection of representative examples from foremost scholars to the date of that publication, see Dr. H. H. Furness, *Variorum Shakespeare, Hamlet* (1877), I, 162–168. No collection of the recent and better interpretations has been made.

[2] The passages are quoted as they appear in H. H. Furness, *Variorum Shakespeare, Hamlet* (1877), II, 59, and I, 162–68.

Q_1 (1603)

968. *Ham.* Players, what Players be they?
Ross. My Lord, the Tragedians of the Citty,
Those that you took delight to see so often.
Ham. How comes it that they trauell? Do they grow restie?
Gil. No my Lord, their reputation holds as it was wont.
Ham. How then?
Gil. Yfaith my Lord, noueltie carries it away,
For the principall publike audience that
Came to them, are turned to priuate playes,
And to the humour of children.

I accept it as a conclusion now beyond debate that the whole passage in F_1 was written in 1601 and first acted by the closing months of that year or the opening of 1602, the only period in

Q_2 (1604), II, ii, 315–24

Ham. What players are they?
Ros. Even those you were wont to take such delight in, the tragedians of the city.
Ham. How chances it they trauaile? their residence, both in reputation and profit, was better both ways.
Ros. I think their inhibition comes by the means of the late innovation.
Ham. Do they hold the same estimation they did when I was in the city? are they so followed?
Ros. No, indeed, are they not.

Lines 325–45 ("*Ham.* How comes it? . . . Hercules and his load too") are omitted from Q_2, Q_3, Q_4, Q_5. In all the Qq, the next speech begins, "*Ham.* It is not very strange; for my uncle," &c., as in F_1, *infra*, l. 346.

F_1 (1623), II, ii, 315–50

F_1 gives 315–24 exactly as Q_2, with the exception of transposing "they" and "are" in 324, and continues with 325–45, omitted from the Q_2, Q_3, Q_4, Q_5, thus:—

Ham. How comes it? Do they grow rusty?
Ros. Nay, their endeavour keeps in the wonted pace; but there is, sir, an aerie of children, little eyases, that cry out on the top of question and are most tyrannically clapped for't; these are now the fashion, and so berattle the common stages—so they call them—that many wearing rapiers are afraid of goose-quills, and dare scarce come thither.
Ham. What, are they children? who maintains 'em? how are they escoted? Will they pursue the quality no longer than they can sing? will they not say afterwards, if they should grow themselves to common players,—as it is most like, if their means are no better,—their writers do them wrong, to make them exclaim against their own succession?
Ros. 'Faith, there has been much to-do on both sides, and the nation holds it no sin to tarre them to controversy; there was for a while no money bid for argument, unless the poet and the player went to cuffs in the question.
Ham. Is't possible?
Guil. Oh, there has been much throwing about of brains.
Ham. Do the boys carry it away?
Ros. Ay, that they do, my lord; Hercules and his load too.
Ham. It is not very strange; for my uncle is king of Denmark, and those, that would make mows at him while my father lived give twenty, forty, fifty, a hundred ducats a-piece, for his picture in little. 'Sblood, there is something in this more than natural, if philosophy could find it out.

the history of the drama and stage at which the allusions could have point or fit the facts.[1]

The strolling players are those of the public theatres,—men. In giving the reason for their traveling, Shakespeare glances at the theatrical conditions of the times, as already examined. The Queen in carrying out her notions of what she wished in the way of a theatre, established the Blackfriars with the Children of the Chapel. With this grew up the notion of restrictions and prohibitions of the public theatres. For the Queen to maintain a theatre at all was an innovation in itself. But to maintain a private theatre and at the same time to attempt to shut up all but two of the public playhouses, with severe restrictions on even those two, was both an innovation and an inhibition at once, that seemed related to each other as cause and effect.[1] This not only diminished the reputation and profit of the unfavored players and drove them into the country,[2] but also justly called for so much

[1] [1602] xxvj^to^ Julij **James Roberts** Entred for his Copie vnder the handes of master PASFEILD and master **waterson** warden A booke called *'the Revenge of HAMLETT Prince [of] Denmarke' as yt was latelie Acted by the Lord Chamberleyne his servantes*.....vj^d^ —E. Arber, *A Transcript of the Registers of the Company of Stationers 1554–1640* (1875–94), III, 212.

The play in final form, from which the above publication was garbled, was on the stage long enough before this entry to inspire the surreptitious issue.

See also on the dating, *supra, May Day* (86, 168), *Widow's Tears* (*ibid.*), Clifton's Complaint (86), the stage-quarrel (158[4], 171, 181), the strained official and theatrical relations (157). Also see *infra*, 183–84[1].

All evidences combine to show *Hamlet* was written late 1601, and first acted late 1601 — early 1602, doubtless the chief attraction of the Christmas season.

[1] "I think their inhibition comes *by the means of* the late innovation."

[2] I do not know the detailed basis for Shakespeare's claim as to the players having to travel. This might be ascertained by long research in the archives of municipalities. But the preceding pages have shown sufficiently that the statement is based upon actual conditions of hardship resulting from the Queen's attitude. The few known details of the traveling companies at this period are these:

In 1599, a company of English actors under Laurence Fletcher (sometimes, but erroneously, supposed to have been Shakespeare's company) visited Scotland, and were patronized by James VI. (See *State Papers, Elizabeth, Scotland*, LXV, Nos. 64 and 64 I, dated Nov., 1599, Public Record Office). Again, in Oct., 1601, Fletcher led a company thither.

Shakespeare's own company was at Oxford and Cambridge sometime prior to the publication of *Hamlet*. (See title-page of Q_1, *infra*, 182[2]). Whether these visits antedated the Stationers' Register entry, 26 July, 1602, is undetermined.

Henslowe's *Diary* (ed. W. W. Greg, 1904), 177–78, shows Lord Worcester's men, of the Rose, went

at least as the mild righteousness of this passage, despite Elizabeth's absolute law against criticism of the state in public plays.

Under these conditions of course the public theatres were not and could not be "followed" as formerly. The immediate source of grief to the "common stages,"[1] as people now, since the new fashion, were calling the public theatres, whose cause Shakespeare champions, lay in this "aerie" of "little eyases"[2] that the Queen-care was fledging.

The rivalry is not with inferior children-actors, but with a company of boys whose unquestioned excellence receives the gen-

into the country March 12, 160[1]-2. They returned to London and renewed acting Aug. 17, 1602 (*idem*, 179).

Strolling players, of course, had been in earlier stage-history permitted to wander at will. But Shakespeare cannot have these in mind, for the law of 1597 (*supra*, 152[3]) put a stop to this by the regulating control of noble patronage. Besides, the satire on the Children and theatrical conditions could not have had point in reference to this earlier period. The company to which Shakespeare belonged traveled in 1593, 1594, 1597, but not again, it seems, prior to the *Hamlet* presentations at the universities. (See Sidney Lee, *A Life of William Shakespeare*, 5th edition, 1905, 40, for list, from which, however, this last item is omitted).

No company traveled except when its profits in London were unsatisfactory. For this condition at the present period, the Blackfriars stands as the cause.

In only two plays does Shakespeare mention strolling players,—in *Hamlet* (1601-2) and *The Taming of the Shrew* (1602?), just at the time when the Queen's purposes were bearing bitter fruit for the public theatres.

[1]The practice of so calling them originated in the Queen's orders through the Privy Council in differentiation from Blackfriars. (See *supra*, 156-57[1].)

Jonson in *The Case is Altered*, II, iv, (at Blackfriars *ca.* Sept.—Oct., 1597) uses "common theatres" and "public theatre" in a long and sharp satire on the sort of audiences frequenting them. In *Cynthia's Revels, Induction* (*ca.* April, 1600), he uses "common stages" and "public theatre" opprobriously.

Doubtless the frequenters of theatres made the same distinction;—conveying thereby the stigma of inferiority that Shakespeare here disrelishes.

But "common" in reference to plays in the sense of "ordinary" or "usual" is found very early. *E. g.*, in 1552, Bishop of London Bonner issued to the clergy an order prohibiting in churches "all manner of common plays, games, or interludes" &c. (See E. Malone, *Shakespeare Variorum*, ed. Boswell, 1821, III, 45). But no opprobrium seems to attach to the word then as is laid upon it later in distinguishing Blackfriars and public theatres. Examples of this earlier inoffensive use in application to plays, games, etc., are numerous even in official papers prior to 1597. But the opprobrious sense of both "common" and "public" applied to theatres dates from that year.

[2]The terms "aerie" (eagles-nest) and "eyases" (eaglets) applied to the Queen's establishment present in a single view actors and supporter. There is conveyed also the sense of security of position against all interference. See further on this meaning under "aerie," *The New English Dictionary* (ed. Murray). Compare also "her mai-

erous applause of the most select and judicial audiences of London.[1]

The men-players are doing their best to maintain their prestige; but they are unable to stem the tide of popularity and fashion. The followers after illustrious example have taken up the theatre with its privileges of privacy, high prices, novelties, and spectacular effect as the fad of the day. The Boy-actors and their poets have rather got the best of it in the wit-combat between them and the "common stages" and have given the latter such a shaking up with their rattling fire as to diminish their popularity still farther in comparison. The local and personal drives have caused my rapier-girdled courtier and fine gentleman to avoid the public theatres rather than make himself for coming thither the subject of later stage-jest before his fashionable set at Blackfriars.[2]

esties unfledged minions" in *The Children of the Chapel Stript and Whipt* (1569), *supra,* 4[1], and "neast of boys able to ravish a man" in Father *Hubbard's Tales,* by T. M. (1604), *infra,* chap. XVI.

[1] "Cry out on the top of question" is usually explained as a detraction of the Boys; as, "at the top of their voices," "with bad elocution," &c. I cannot find any detraction of the Boys in the whole passage. It is not they, but the manner of their establishment and support that is objectionable.

Moreover, I find no untruth in the passage. It would be not only false, but would kill Shakespeare's own point, for him to say the acting was bad. The whole history of the Boys shows it was good.

At the time *Hamlet* was written, young Pavy, Field, Underwood, and Ostler were among the chief Children-actors. Pavy was famous then as a boy who acted old men's parts superbly, and at his death (1601 or 1602?) was made the subject of Jonson's noble tribute to him as an actor,—one of the most delicate and appreciative recognitions of excellence ever written. (See further, *Careers of Actors, infra,* vol. II.)

The latter three Boys were also superior actors, and were all, a few years later, taken into Shakespeare's own company, where they were among the leaders. Field was second only to Burbage. (See their careers, *u. s.*)

Also, at the time *Hamlet* was written, the Boys were pleasing to Queen, Court, and critical London. (See audiences, *supra,* 112, 164–66[1].)

Historically, the notion of bad acting has no basis.

That "cry out on the top of question" means "excel," "do with unquestioned excellence," "exhibit superiority" is clear from the *Hamlet* text in the light of the facts, as above. It is substantiated by the only two known similar uses of Shakespeare's time. In this same scene (II, ii, 417) Hamlet speaks of "others whose judgments *cried in the top of mine*" (= excelled, were superior to]. In Robert Armin's *Nest of Ninnies* (1608, ed. Collier, *S. S. Pub.,* 1842, X), 55, the author speaks of "making them [fencers or players at single-stick] *expert* till they *cry it up in the top of question.*" This seems final as a commentary.

[2] It was the custom at Blackfriars (and probably at other theatres) to break jests upon the

The question of maintaining a company and appareling them, or dressing them out, was, as already noted,[1] of first importance in enabling theatrical and financial success. The expense of maintenance was first. But as Elizabethan theatres had little scenery, they made up for the lack in appropriate apparel. As practically every play of the time represents people of station,—kings, queens, courtiers, lords, &c.,—the expense of apparel probably equaled or exceeded the keep of the company. A glance through Henslowe's *Diary* shows the cost of a pair of silk stockings from 15 to 20 shillings; a doublet and hose, 3 *l.* to 7 *l.*; a black satin suit, 5 *l.* A single rich cloak cost 19 *l.*,—almost half as much for only part of one costume as Evans was paying for the annual rental of Blackfriars. The total value of a theatrical wardrobe probably exceeded the value of the given theatre itself.[2]

It is quite certain from all testimony that the Children's apparel furnished by the Queen was of superior elegance.

Since it was generally known who "maintained" the Boys and thus "escoted" them, Shakespeare desiring merely to raise the notion suggestively above the mental horizon, accomplishes his object fully by simply asking the question and not allowing an answer other than that which comes at once to the mind of the audience. To this he adds the touch of deft diminution by the coinage of a word for the occasion which no one of the audience could fail to catch by the intonation, a slight gesture, or even the very punning nature of the word, indicating these lads were

audience or some prominent personage. Such local hits did not then and do not now appear in the printed play. See such a jest in the *Induction* to *Cynthia's Revels;* also the statement of its prevalence at Blackfriars made by Sly in the *Induction* to *The Malcontent.* To the same effect see *The Guls Horne-Book* (*u. s.,* 133[4]).

This practice grew worse under James I. Again and again the King was made the target. This was one of the chief causes for his putting a summary end to the Blackfriars Boys in 1608. (See documents in later chapters.)

[1] *Supra,* 128–29.

[2] There are no known exact valuations of the wardrobes of public theatres. Henslowe's *Diary* gives by inventories and purchases a general notion. The *Diary* of Thomas Platter (1599) says, "Die Comedienspieler sindt beim allerköstlichsten vnndt zierlichsten bekleidet."—(See extracts by Prof. Binz in *Anglia* (1899), XXII, 459.) Even in 1590 a player is represented by Robert Green as saying "his very share in playing apparel would not be sold for 200 *l.*" (Quoted in Sidney Lee, *op. cit.,* 1899, 198.) In 1608 the wardrobe of the Children of the King's Revels at Whitefriars was valued at 400 *l.*,—apparently in that special case, however, too high. (See following chapters.)

hardly old enough to wear players' "apparel," but must needs wear the "cotes" of children.[1]

Then with the skill of the master wit innocently foreswearing

[1]The meaning of "escoted" lies thus near home. It has hitherto been explained as derived from the rare OF. *escotter,*—dead even to the French more than a hundred years when Shakespeare wrote, and long supplanted by *ecoter!!*

The etymological treatment of "cote," "coat," "escoted"; and "escotter," "ecoter," "escot," "scot," "shot," "shoot," is too long for insertion here.

I note simply that "escotter" seems to have died in French about the middle of the 15th century. (See Godefroy, *Dictionnaire L'Ancienne Langue Francais, du IXe au XVe Siecle,* 1898. The one late example there given is clearly an obsolete use.)

Cotgrave's frequently quoted report of the word in 1611 is the result of mere compilation of older dictionaries, not the report of current usage. The form "escotter" is not found in current French literature of Shakespeare's time, nor in the hundred years preceding. The title-page of Cotgrave's work claims only compilation,—"*A Dictionarie of the French and English Tongues.* Compiled by Randle Cotgrave. London. 1611." But it is not only a compilation, and therefore of no value as an authority on the current French, but it is also merely a French-English not an English-French dictionary, and hence of no value on the English.

Cotgrave defines, "Escotter. Euery one to pay his shot, or to contribute somewhat towards it, &c." The meaning is correct. But such a meaning and such an etymology from such or any reference, applied to the ephemeral word-play "escoted," is but fair game for laughter as the lean and wrinkled nonsense of despairing pedantry.

No contemporary English dictionary gives "escote." I have examined every English and every English-foreign dictionary (and every extant edition of each) published from the beginning of the language up to Samuel Johnson's *English Dictionary* (1755). (For list, but giving first editions only, see H. B. Wheatley, *Chronological Notices of Dictionaries of the English Language,* in *Transactions of the Philological Society,* London, 1865.) The word is in none of them till Johnson, where the meaning was assumed that has been followed to the present.

An indefinite number of examples of "cote," "coat," meaning *dress, apparel,* or *to dress,* &c., can easily be collected by any one from Chaucer's "medlee cote" (see also picture in Egerton MS.) to a period much later than Shakespeare. Two from contemporary authors suffice here.

"Scarce will their Studies *stipend* them, their wiues, and Children *cote.*"—William Warner, *Albion's England* (revised ed. 1602), 238. Not in the earlier (1589) edition. This example is interesting not only as contemporary to the year, but also as juxtaposing the common notions of *maintenance* and *apparel-ing* as in *Hamlet.*

"After they [our first parents] got *coates* to their backes, they were turned out of doores. Put on therefore either no *apparel* at all, or put it on carelessly."—Tho. Dekker, *The Guls Horne-Book* (1609), in *op. cit.,* II, 220.

Shakespeare seems the only one who ever used the word "escote" prior to Johnson's learned blunder of 1755;—sufficient index of its special coinage. It originated and died with the occasion. Its components are "cote" (coat) with a sliding prefix ex- (es-). Puns however do not come into existence through lawful etymologic unions but despite them. They are the begotten waifs of occasion.

himself by leaving with the audience the satisfied sense of discovering the meaning themselves, he turns aside and proceeds to blame the poets who write for the Children for making them utter jibes against the public theatres, to which they must ultimately succeed. For upon the general knowledge that the primary function of singing is the basic consideration of their impressment and maintenance while their acting is simply a consequence that must be conterminal with the cause, it is warrantably assumed that these Chapel Boys will be continued at the theatre as actors only so long as they can sing.[1] If then they keep on acting until their voices at puberty begin to break and unfit them for choir-singing and taking part in the varied sort of entertainment they now furnish at Blackfriars, they will at the time of voice-change be deprived of their present superior position; and not being gentlemen's sons but lads who have no better means than their own resources for support,[2] it is like-most that they themselves, despite their present raillery, will then have to seek employment as a means of livelihood among these same "common players" their poets now make them cry down.[3]

But the contest has not been one-sided. With a glance at the more general conditions in which there has been "much to-do on both sides," Shakespeare having made Hamlet apparently talk away from the question raised as to maintenance and appareling of the lads, now purposely causes Rosencranz to avoid directly answering it, but nevertheless reenforces the answer in the minds of the audience by shifting, after all, the blame from the poets to the "nation" for allowing and encouraging the present state of affairs. For a while the controversy was so hot that plays were purchased by neither side unless[4] the poet took the part of the

[1] See *supra,* 115.

[2] Shakespeare by his "as is like most if their meanes are no better" (*1623 folio*) understands that these are not gentlemen's children. Clifton's boy, who never acted, was probably the only one of rank taken up. See also *supra,* 80[3], 82[4].

[3] Shakespeare prophesied soundly here. This is exactly what did happen later, as the history from 1610 to the Restoration, taken up in succeeding chapters, shows. The grown-up children of Blackfriars and Whitefriars are found among the leaders in every men's company but one, and practically dominate the stage during that later period.

[4] "There was for a while no money bid for argument unless" &c. This is as clear a declaration as one need make that the personal was subordinate to the theatrical quarrel and came before the public solely through demands of the latter. *Cf. supra,* 158[4], 169–72.

players he wrote for and jibed at their opposition poets and players,[1] as notably in Jonson's *Poetaster* (*ca.* April, 1601) at Blackfriars and Dekker's *Satiromastix* (summer, 1601) at the Globe and Paul's.

Although there is a law (Elizabeth 1559)[2] which absolutely forbids any allusion or criticism by the stage with reference to affairs of state and religion, "the nation holds it no sin" even thus to countenance and set on such a controversy as the present one.[3]

It is a condition of affairs much to be deplored, and "in a well-governed state"[4] seems hardly "possible."[5]

Where the blame rests for this "throwing about of brains" and for the whole unsatisfactory theatrical status is thus shadowed forth with such consummate skill that the audience, familiar with the circumstances, could not miss the chief cause of grievance, though no breach of open declaration is made.

The conclusion as to whether the boys win or not is a pregnant summary of conditions in a single line. Rosencranz puns on "carry it away," and says that they not only have won but they have carried off the chief audience and income of the Globe,—

[1] "Unless the poet and the player went to cuffs [F_1, "Cuffs"] in the question." "Cuffs" was a common nickname for a schoolmaster because of his bad habit. "To go to cuffs" about anything therefore came to have a quadruple signification,—primarily "to cuff or fight," then "to go to a master who cuffs," "to go to school," and "to study, study up, study how, find ways and means."

Shakespeare plays with the punning nature of the expression, with the final sense of course resting upon the last of the quartet.

Compare the following from *Satiromastix* (summer, 1601, ed. Hawkins, *op. cit.*, III, 135):—"He [Horace-Jonson] has as desperate a wit as any scholar ever went to cuffs for" [= went to school for, acquired by study].

[2] Printed in J. P. Collier, *op. cit.*, I (1831^1), 168–69; (1879^2), 166^1. Also in *New Shakespeare Society Transactions* (1880–85), Appendix to Part II, 19†.

For punishments inflicted on the Rose in 1597 and the Curtain early 1601, doubtless under the interpretation of this law, see *supra*, 155, 158. It seems remarkable that Shakespeare was permitted so much as the present deft passage in *Hamlet* against the same law. See *supra*, 164.

[3] Tschischwitz (quoted in Furness, *Variorum Shakespeare, Hamlet*, I, 167) could not see the "logic" of 332–37, as they stand,—for a very good reason! But really was ever a cause that required the most delicate handling presented to the minds of the audience with more consummate "logic"?

[4] Order of the Privy Council, 22 June, 1600, *u. s.*, 151^1.

[5] *Hamlet*, *u. s.*, 174, F_1, l. 342.

for which "Hercules and his load," the sign of the theatre, stands.[1] That is, of course, they have attracted away the better paying and more genteel class.

In the next speech, the fickle fawning of a public after the fashion of royalty without regard to the justness of the cause it represents is made the common basis upon which Shakespeare rises from the consideration of local theatrical conditions to the fuller swing of physical and psychic difficulties that beset Hamlet in the tragic execution of the high purpose laid upon him.

Thus ends this valuable record touching the Children of the Chapel at Blackfriars. Seen in its proper relation to their history it becomes also contributive to certain *Hamlet* problems, which cannot be taken up here. I am however compelled to take notice of one item which further connects with this history.

The 1603 quarto,[2] admitted on both sides of a long controversy[3] to be at least maimed and mutilated, contains no reference to the innovation and inhibition, but does give in four lines a general summarized sense of the twenty lines (325–345) found first in the 1623 folio.

On the other hand, the second quarto (1604)[4] omits these twenty lines, but gives the rest of the passage as a practical identity with the same in the 1623 folio.[5] This omission in Q_2 is

[1] Malone, *op. cit.*, III, 67, thinks the sign of the Globe was painted on the river-side wall,—"a figure of Hercules supporting the Globe, under which was written *Totus mundus agit histrionem.*" I do not know his authority.

[2] The | Tragicall Historie of | Hamlet | Prince of Denmarke | By William Shake-speare.| As it hath beene diuerse times acted by his Highnesse ser-|uants in the Cittie of London: as also in the two V-|niuersities of Cambridge and Oxford, and else-where| [vignette] At London printed for N. L. and John Trundell.| 1603:|—*Title-page*, 1603 quarto.

[3] See discussions by Caldecott, Knight, Delius, Staunton, Elze, Dyce, and others on the one side (that Q_1 is a first conception, later reworked), and Collier, Tycho Mommsen, Grant White, and others on the other side (that the play was completed before printed or played), quoted in H. H. Furness, *Shakespeare Variorum, Hamlet* (1877), II, 14–33.

The controversy still continues in recent books and periodicals. See *infra*, 184[1].

[4] The ' Tragicall Historie of | Hamlet, | Prince of Denmarke.| By William Shakespeare. | Newly imprinted and enlarged to almost as much | againe as it was, according to the true and perfect | Coppie. | [vignette] At London.| Printed by I. R. for N. L. and are to be sold at his | shoppe vnder Saint Dunstons Church in | Fleetstreet. 1604.| —*Title-page*, 1604 quarto.

[5] The only difference is in the transposition of "they" and "are" in line 324. See note on F_1, *supra*, 174.

made in the face of the statement on the title-page that the edition is "enlarged to almost as much againe as it was, *according to the true and perfect Coppie.*"

Without entering into argument, I must, though anticipating a date by two years, simply state the significance of these facts.[1]

When James I came to the throne, the royal maintenance and appareling of the Blackfriars Boys ceased. In January, 1604, they were put on an exact level with the public theatres. The cause of grievance to the public theatres being thus removed, the continuance of Shakespeare's attack thereafter would have been pointless and absurd,—an attack upon a mere historical foe. Hence it was omitted from the 1604 edition.—Which incidentally indicates that that edition was, as it claimed to be, printed from "the true and perfect copy" as Shakespeare and his company then wished it. It was likewise omitted from Q_3 (1605), Q_4 (1611), Q_5 (undated, but after 1611), and was never printed until the 1623 folio, which aims to preserve to literature and history the plays of Shakespeare from their most authentic source. I have no doubt that the 1623 folio text was from the original manuscript containing minor changes made from time to time for the stage. This passage containing the attack, crossed out and not acted after the death of Elizabeth, was restored in the folios as a part of the original play.

In the 1604 and later quartos, just enough of the original matter is retained to make the transition from the necessary talk about the players to the matters of dramatic concern expressed in Hamlet's, "It is not very strange" &c. It is clear that the part retained was kept solely for this transitional step.[2]

We no longer need to rely upon the four-line summary in the 1603 quarto as sole proof that the complete passage (315–345) was in the play as originally acted; for, as seen, the passage in its

[1] The matter is taken up fully in proper chronological order, complete work, vol. I, chap. XVI.

[2] See Dr. Gustav Tanger, *The First and Second Quartos and the First Folio of Hamlet (New Shakespeare Society Publications,* Series I, Nos. 8 and 9, 1880), 109–97. On p. 129, Dr. Tanger has as clear a statement as can well be made on the awkward gap caused by the omission (325–45). His conclusion, however, that this part was left out by accident is an unfortunate guess.

entirety fits the facts of no other period than at the close of 1601 and opening of 1602.[1]

No farther documents touching the status or popularity of the Children of the Chapel at Blackfriars are known. The evidences adduced give us the "gelegenheit" or state of affairs through a brilliant career from 1597 to September 18, 1602. We know from subsequent events that the same condition continued to the close of Elizabeth's reign,—March 24, 1603. What occurred there-

[1]The facts on the above *Hamlet* passage are established on a purely historical basis with reference to the Children of the Chapel as actors at Blackfriars.—Which has hitherto not been possible. The larger significance to certain *Hamlet* problems must be taken up elsewhere. I add here only a word.

The certainty that this important passage was written and acted in its entirety in late 1601 to early 1602 is established. (See *supra*, 174–75[1]). The logical acceptance of it as a representative example of "the true and perfect copy" as originally written and acted is unavoidable;—just as in similar cases in certain other Shakespearean and contemporary plays. It stands thus for the first time as an incontrovertible fact among the proofs that Shakespeare wrote *Hamlet* in 1601 just as he wrote his other great dramas before and after,—once and for all. The later stage-changes are unimportant. It is correspondingly disproof of the theory, comfortable to some, that between the quartos of 1603 and 1604 Shakespeare's mind and art underwent a century-long Homeric development. (See commentators cited *supra*, 182[3]. Also, among later theorists, see J. Schick, *Die Entstehung des Hamlet. Festvortrag, gehalten auf der General-Versammlung der Deutschen Shakespeare-Gesellschaft am 23. April 1902;* in *Shakespeare-Jahrbuch*, 1902, XXXVIII, xiii-xlviii.)

With the play in final form in 1601, there is no longer need of supposing, with some, an earlier form, or with others an intermediate form, from which the pirated 1603 quarto and *Der Bestrafte Brudermord* were derived, nor with others that the latter is derived from the former. (See W. Creizenach, *Der Bestrafte Brudermord and its Relations to Shakespeare's* Hamlet, in *Modern Philology* (1904-5), II, 249–60. This is in the main a defense of the author's views on the same subject in *Berichte der philol.-histor. Classe der Königl. Sächs. Gesellschaft der Wissenschaften*, 1887, 1ff., and in *Schauspiele der Englischen Komödianten* in Kürschner's *Deutsche National-Litteratur*, 1889, XXIII. At the same time it is an answer to the review of Creizenach's views by Dr. Gustav Tanger, *Der Bestrafte Brudermord oder Prinz Hamlet aus Dännemark und sein Verhältniss zu Shakespeare's Hamlet*, in *Shakespeare-Jahrbuch*, 1888, XXIII, 224ff. To Creizenach's article in *Modern Philology, u. s.*, M. B. Evans, *"Der Bestrafte Brudermord" and Shakespeare's "Hamlet,"* in *eod.*, 433–49, makes reply. This is mainly a defense of Evans's *Der Bestrafte Brudermord sein Verhältniss zu Shakespeare's Hamlet.* Diss. Bonn, 1902.)

Both versions were written from the original play as presented on the Globe stage from *ca.* late 1601 to early 1602 on. Who wrote them and why they have certain similarities and differences requires investigation on wholly new lines that are not bounded by the defense of theories. Known facts concerning certain actors long in Germany

after; with its larger significance to the drama and stage, is the subject of following chapters.

and but recently in the Burbage-Shakespeare company may be of use in a first research for external *data*. But unless historical facts on a matter of mere history can be established, conclusions based on theory were better unexpressed.

ERRATUM

Index references to pp. v–xvi should be i–xii. Hence, deduct four from any given reference to these twelve prefatory pages.

SUBJECT INDEX

[This analytical index of chief subjects, supplemented by cross-references in the foot-notes, may serve for most purposes in lieu of the more severely scientific *index rerum et nominum et titulorum,* which is too extensive to be practicable in this introductory volume.]

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I.—*The Sphegoidea of Nebraska*

BY HARRY SCOTT SMITH

The following paper is the result of a study pursued by the writer at odd intervals during the past two years, and is based on the material contained in the collection of the University of Nebraska. Although the list is a fairly large one for a single state, nothing like systematic collecting has been done on the group, and it is expected that a great many additional species will be found in the near future. The only portion of the state that has been at all closely collected is Sioux county, where, during the past ten years, several zoological expeditions in charge of Professor Lawrence Bruner have been sent. This region is fast becoming famous from the standpoint of the zoologist as well as the paleontologist, and from this locality many interesting records are obtained. Of the 200 species treated in this paper, 118 have been taken in Sioux county, and 60 of these have not been taken elsewhere within the state. With a single exception these trips were made during the month of August, so that in all likelihood, if the region were worked at some other time of the year, many other species would found. In order to avoid repetition in the following pages it may be stated here that Indian creek, Jim creek, Monroe canyon, Warbonnet canyon, Agate, and Glen are found in the above mentioned county.

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But little of originality can be claimed for the synoptic tables, most of which are essentially copies of those used by former writers, modified and rearranged for the present need; this is especially true of the family, subfamily, and generic keys, some of which are almost exact copies. These are given principally because of a demand for something of the kind for use in the entomological laboratory of the University of Nebraska.

The synonymy given is as brief as possible, in most cases only the original description and the latest monographic reference or the best characterization of the species being cited. Where the insect has received more than one specific name or when the sexes have been separately described these also are usually referred to.

The writer wishes to express his deepest gratitude to Professor Lawrence Bruner, under whose direction the work was undertaken, for valuable advice and encouragement. Thanks are also due to Mr. H. L. Viereck for many timely services rendered in the comparison of specimens and copying of descriptions which were inaccessible, and to Professor H. T. Fernald for like assistance, while acknowledgments should also be made to Ashmead's *Classification of the Entomophilous Wasps of the Superfamily Sphegoidea,* Fernald's *Chlorioninae of North America,* and to the many valuable writings of Mr. William J. Fox, all of which figured largely in the preparation of the synoptic keys found in the following pages.

Superfamily **SPHEGOIDEA**

KEY TO THE FAMILIES

A. Middle tibiae always with two apical spurs.

B. Abdomen connected with the thorax by a slender, almost cylindrical petiole; first cubital cell not receiving a recurrent nervure; cubital vein in hind wings generally originating beyond the transverse median nervure, sometimes interstitial .....SPHECIDAE

BB. Abdomen not connected with the thorax by a slender, almost cylindrical petiole, usually sessile or subsessile; if the first segment is petioliform it is not cylindrical, but considerably larger in circumference toward apex than at base, rather clavate.

C. Abdomen without a constriction between the first and second segments; second cubital cell receiving one or two recurrent nervures, or one or both recurrent nervures are interstitial with the transverse cubital nervures.

D. Labrum free, well developed, subtriangular or semicircular, wider than long; transverse median nervure strongly sinuate.....STIZIDAE

DD. Labrum not free, entirely covered by the clypeus, or at most with only its apex visible; transverse median nervure either straight or sinuate, NYSSONIDAE

CC. Abdomen with a more or less distinct constriction between the first and second segments, the first segment coarctate; intermediate coxae contiguous; second cubital cell never receiving a recurrent nervure....MELLINIDAE

AA. Middle tibiae with only one apical spur (sometimes entirely absent).

B. Front wings with two or three cubital cells; if with only one the head is transverse, not quadrate, and the eyes are deeply emarginate within; median cell in hind wings not twice as long as the submedian, the latter often longer.

C. Abdomen with a strong constriction between the first and second segments; eyes often emarginate within.

D. Front wings with two cubital cells, the second usually more or less indistinctly defined, sometimes entirely obliterated; abdomen elongate, clavate, the first segment petioliform and coarctate; eyes always deeply emarginate within; head not wider than thorax, the temples flattened, TRYPOXYLIDAE

DD. Front wings always with three cubital cells, the second often petiolate, the second and third each receiving a recurrent nervure; abdomen sessile or subsessile, sutures between segments usually deeply constricted; head wider than thorax, the temples rather broad; eyes generally normal, sometimes emarginate within .....PHILANTHIDAE

CC. Abdomen without a strong constriction between the first and second segments; eyes most frequently normal, rarely emarginate within.

D. Abdomen sessile, never petiolate.

E. Marginal cell usually appendiculate; transverse median nervure straight, not sinuate; mandibles more or less emarginate on their exterior margin; labrum small, usually completely hid-

den under the clypeus; anterior ocellus normal, lateral ocelli sometimes more or less distorted .....LARRIDAE

EE. Marginal cell not appendiculate; transverse median nervure sometimes sinuate; mandibles entire on their exterior margin; labrum large, well developed and triangularly elongated, much longer than wide; ocelli more or less imperfect .....BEMBICIDAE

DD. Abdomen petiolate, or subpetiolate; transverse median nervure not sinuate; ocelli distinct; labrum generally hidden .....PEMPHREDONIDAE

BB. Front wings with only one cubital cell; median cell in hind wings fully twice as long as submedian.

C. Front wings with the first cubital cell distinct, not confluent with the first discoidal cell; scutellum and postscutellum normal, without squamae or spines; eyes diverging toward vertex; temples very broad....CRABRONIDAE

CC. Front wings with the first cubital cell confluent with the first discoidal cell; scutellum margined or with squamae; postscutellum with a stout spine or forked process; eyes converging toward vertex; temples comparatively narrow .....OXYBELIDAE

Family **SPHECIDAE**

KEY TO THE SUBFAMILIES

Second cubital cell receiving both recurrent nervures, or the second recurrent nervure is interstitial with the second transverse cubitus, although sometimes the first recurrent is interstitial with the first transverse cubitus, or then received by the first cubital cell.

Claws with a single tooth beneath, although sometimes very minute; more rarely without a tooth, the claws simple; tarsal comb in the female absent; abdomen always with a one-segmented petiole; cubital nervure of hind wings interstitial or nearly so; metathorax with a large U-shaped area above.....SCELIPHRONINAE

Claws simple, without a tooth beneath; tibiae more or less spinous; tarsal comb in female present; abdomen most frequently very elongate, the petiole composed of two segments, rarely of only one segment; cubital nervure of hind wings usually originating beyond the transverse median nervure.....SPHECINAE

Second cubital cell receiving only the first recurrent nervure; the second recurrent nervure received by the third cubital cell, or at least beyond the second transverse cubital; claws with one to six teeth beneath;

tibiae usually strongly spinous; tarsal comb in female present (except in *Isodontia*) .....CHLORIONINAE

Subfamily **SCELIPHRONINAE**

KEY TO THE GENERA

Transverse median nervure in front wings interstitial with the basal nervure; species metallic blue or violaceous; clypeus anteriorly three-dentate; petiole of abdomen not or scarcely longer than the metathorax .....*Chalybion*

Transverse median nervure in front wings not interstitial with the basal nervure, but uniting with the median nervure a little before the origin of the basal nervure; species black and yellow, not metallic; clypeus flat, at apex bidentate; petiole of abdomen about twice as long as metathorax.....*Sceliphron*

Genus **Chalybion** Dahlbom

Chalybion coeruleum (Linnaeus).

1758. *Sphex coerulea* Linnaeus, *Systema Naturae,* 10th edition, p. 571.

Found in the greatest abundance over the entire state.

Genus **Sceliphron** Klug

Sceliphron coementarium (Drury).

1770. *Sphex coementaria* Drury, *Illustrations of Natural History,* i, p. 105.

Taken commonly throughout the eastern half of the state.

Subfamily **SPHECINAE**

KEY TO THE GENERA

Front wings with two cubital cells; petiole long, two-jointed, as in *Sphex;* submedian cell as long as median.....*Coloptera*

Front wings with three cubital cells; submedian cell a little shorter than the median.

Petiole of the abdomen very long, two-jointed, the second segment being elongate and slender, forming with the first a long petiole, *Sphex*

Petiole of the abdomen not especially long, one-jointed, the second segment bell-shaped; clypeus in the female with a more or less distinct median emargination .....*Psammophila*

Genus **Coloptera** Lepeletier

Coloptera wrightii Cresson.

1868. *Coloptera wrightii* Cresson, *Transactions of the American Entomological Society*, i, p. 378.

1903. *Coloptera wrightii* Melander, *Psyche*, x, p. 162.

A single specimen of this odd wasp was taken at Pine Bluffs on August 27, 1893.

Genus **Sphex** Linnaeus

SYNOPSIS OF THE SPECIES

Pronotum or mesonotum or both, more or less transversely striated or ridged 1
Disk of thorax either smooth or punctured, but not with complete transverse striae 3
1. Thorax and legs in part red..... 2
1. Thorax and legs black; size large, 22–30 mm. long; pleura with silvery pubescence; prothorax comparatively long....*procerus*
2. Head black; striae of metanotum becoming rugose laterally, *cressoni*
2. Head ferruginous; striae of metanotum more complete laterally .....*ferruginosus*
3. Legs in part red, especially the anterior ones; head and thorax with silvery pubescence.....*breviceps*
3. Legs black 4
4. Abdomen entirely black, or with a very little red; pleura with beautiful silvery spots; clypeus of male produced; metapleura finely rugulose.....*abbreviotus*
4. Abdomen in part red..... 5
5. Pleura uniform dull black in color, without silvery pubescent markings 6
5. Pleura with markings of silvery pubescence; wings hyaline or nearly so .....*vulgaris*
6. Wings black, violaceous; second segment of petiole usually black above .....*nigricans*
6. Wings yellowish, usually darker apically; second segment of petiole usually red above.....*extremitatus*

Sphex procerus (Dahlbom).

1843. *Ammophila procera* Dahlbom, *Hymenoptera Europaea*, i, p. 15.

1856. *Ammophila gryphus* F. Smith, *Catalogue of Hymenoptera in the British Museum*, iv, p. 222.

1903. *Ammophila procera* Melander, *Psyche*, x, p. 159.

This large wasp is found quite plentifully throughout the en-

tire state, specimens having been taken at Glen, West Point, Ashland, Lincoln, and Weeping Water, from June to October. It is the largest species of the genus found in the United States, and may be distinguished from the other members found in Nebraska by the transversely striate pro- and mesonotum in conjunction with the black legs and thorax.

Sphex cressoni, new name.

1865. *Ammophila collaris* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 456.
1903. *Ammophila collaris* Melander, *Psyche,* x, p. 159.
1908. *Sphex cressoni* H. S. Smith, new name for *Sphex collaris* (Cresson) (not of Linnaeus).

A single male specimen of this rare species was captured at Glen, expedition of 1906, during the month of August.

Sphex ferruginosus (Cresson).

1865. *Ammophila ferruginosa* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 455.
1903. *Ammophila ferruginosa* Melander, *Psyche,* x, p. 159.

This rare and beautiful species is also represented in the collection of the University of Nebraska by a single specimen, a female, taken at the same time and place as the above. Both are readily recognized by the ferruginous legs and thorax.

Sphex breviceps (F. Smith).

1856. *Ammophila breviceps* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 221.
1865. *Ammophila varipes* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 457.
1903. *Ammophila breviceps* Melander, *Psyche,* x, p. 160.

Fairly abundant in the western portion of the state, having been found in both Sioux and Dundy counties. Rarely east as far as Ashland.

Sphex abbreviatus (Fabricius).

1804. *Pelopoeus abbreviatus* Fabricius, *Systema Piezatorum,* p. 204.
1856. *Ammophila moneta* F. Smith, *Catalogue of Hymenoptera in British Museum,* iv, p. 219.
1903. *Ammophila abbreviata* Melander, *Psyche,* x, p. 160.

Two specimens of this beautiful wasp, a male and a female, were taken at Lincoln, during July. The black body with the

strongly contrasting silvery pleural spots serves to distinguish this species.

Sphex vulgaris (Cresson).

1865. ***Ammophila vulgaris*** Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 458.

1903. ***Ammophila vulgaris*** Melander, *Psyche,* x, p. 160.

Our most common species, having been taken in great numbers at Glen and Warbonnet canyon in Sioux county, Holt county, Cedar Bluffs, South Bend, and Lincoln, from May to August.

Sphex nigricans (Dahlbom).

1843. ***Ammophila nigricans*** Dahlbom, *Hymenoptera Europaea,* i, p. 14.

1903. ***Ammophila nigricans*** Melander, *Psyche,* x, p. 161.

Plentiful in the east portion of the state, but not taken west of Lincoln. Lincoln, Cedar Bluffs, West Point, Ashland, and Weeping Water, June to September. Distinguished by the black wings.

Sphex extremitatus (Cresson).

1865. ***Ammophila extremitata*** Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 457.

1903. ***Ammophila extremitata*** Melander, *Psyche,* x, p. 161.

Next to *vulgaris* the most abundant species, but its distribution is more restricted than the above mentioned, having been taken only from Lincoln and Cedar Bluffs east. Flies from May to September. The yellow wings are very characteristic and readily separate this species from the rest.

Genus **Psammophila** Dahlbom

SYNOPSIS OF THE SPECIES

Body wholly black; pubescence in part white, face silvery (male) or pubescence black (female) ..... ***luctuosa***

Abdomen with basal segments ferruginous..... 1

1. Larger species and very robust; petiole of abdomen short, not extending beyond hind trochanters; wings darker..... ***grossa***

1. Smaller and more slender; petiole much longer, extending beyond hind trochanters; wings paler..... ***violaceipennis***

Psammophila luctuosa (F. Smith).

1856. *Ammophila luctuosa* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 224.

1903. *Psammophila luctuosa* Melander, *Psyche,* x, p. 158.

Found most frequently in the northwestern corner of the state, in Sioux county, during July, but has been taken as far east as Brady Island. Easily recognized on account of its being entirely black.

Psammophila grossa (Cresson).

1872. *Ammophila grossa* Cresson, *Transactions of the American Entomological Society,* iv, p. 209.

1903. *Psammophila grossa* Melander, *Psyche,* x, p. 158.

This species inhabits the entire state, specimens having been taken at Lincoln, West Point, Holt county, and Glen. Flies from June to September. The robust form and the short petiole serve to readily distinguish this species from the other members of the genus.

Psammophila violaceipennis (Lepeletier).

1845. *Ammophila violaceipennis* Lepeletier, *Histoire Naturelle des Insectes, Hymenoptera,* iii, p. 370.

1903. *Psammophila violaceipennis* Melander, *Psyche,* x, p. 159.

Found abundantly throughout the entire state. Sioux county, West Point, and Lincoln, July and August. Easily separated from the above by the more slender form and long petiole.

Subfamily **CHLORIONINAE**

Genus **Chlorion** Lepeletier

SYNOPSIS OF THE SPECIES

Second cubital cell of fore wings higher than broad..... 1
Second cubital cell of fore wings as broad or broader than high..... 7

1. Claws with one tooth; body bright green or blue.....*cyaneum*
1. Claws with two or more teeth..... 2
    2. Claws with two teeth; clypeus with a median truncated lobe and a sinus on each side; abdomen black or at most only faintly brownish or ferruginous.....*laeviventris*
    2. Claws with three to six teeth; clypeus without a median truncated lobe but often with a median emargination or notch 3
3. Abdomen entirely black or dark brown.....*atratum*
3. Abdomen with some ferruginous or yellow color, at least ventrally 4
    4. Males 5
    4. Females 6

5. Size smaller, abdomen usually more black; thorax with pubescence longer and more sparse; tubercles usually not pubescent, *bifoveolatum*
5. Size larger, abdomen more red; thorax with short dense pubescence; tubercles pubescent ..... *thomae*
6. Sixth abdominal segment with its ventral plate broadly excavated on its posterior margin..... *bifoveolatum*
6. Sixth abdominal segment with its ventral plate not broadly excavated ..... *thomae*
7. Stigmatal groove rudimentary or absent..... 8
7. Stigmatal groove present..... 10
8. Third cubital cell not broader on the radial nervure than the distance between the second transverse cubital and second recurrent nervures on the cubital nervures..... *lucae*
8. Third cubital cell broader on the radial nervure..... 9
9. Legs black, abdomen black; pubescence of thorax griseous..... *harrisi*
9. Legs ferruginous, abdomen more or less so; pubescence of thorax golden ..... *elegans*
10. Entirely black, with black pubescence; wings black, violaceous ..... *pennsylvanicum*
10. Abdomen and legs more or less ferruginous; pubescence of thorax bright golden..... *ichneumoneum*

Chlorion cyaneum Dahlbom.

1843. *Chlorion cyaneum* Dahlbom, *Hymenoptera Europaea*, i, p. 24.
1906. *Chlorion (Chlorion) cyaneum* H. Fernald, *Proceedings of U. S. National Museum*, xxxi, p. 313.

Lincoln, August 26, 1905; Haigler, August 11, 1901.

Chlorion laeviventris (Cresson).

1865. *Sphex laeviventris* Cresson, *Proceedings of the Entomological Society of Philadelphia*, iv, p. 463.
1906. *Chlorion (Palmodes) laeviventris* H. Fernald, *Proceedings of U. S. National Museum*, xxxi, p. 318.

This species is recorded from Nebraska by H. T. Fernald in his monograph of the *Chlorioninae*, but I have no specimens of it.

Chlorion atratum (Lepeletier).

1845. *Sphex atrata* Lepeletier, *Histoire Naturelle des Insectes, Hymenoptera*, iii, p. 335.
1906. *Chlorion (Prionony x) atratum* H. Fernald, *Proceedings of U. S. National Museum*, xxxi, p. 338.

Very abundant throughout the entire state. The collection contains specimens from Sioux county, Dundy county, Holt

county, McCook, Neligh, Haigler, Broken Bow, West Point, Ashland, and Lincoln. Flies from June to October.

Chlorion bifoveolatum (Taschenberg).

1869. *Prionony x bifoveolata* Taschenberg, *Zeitschrift für ges. Naturwissenschaft,* xxxiv, p. 408.

1906. *Chlorion (Prionony x) bifoveolatum* H. Fernald, *Proceedings of the U. S. National Museum,* xxxi, p. 346.

One very small specimen of this species from Sioux county, determined for me by H. T. Fernald.

Chlorion thomae (Fabricius).

1775. *Sphex thomae* Fabricius, *Entomologiae Systematicae,* p. 346.

1906. *Chlorion (Prionony x) thomae* H. Fernald, *Proceedings of the U. S. National Museum,* xxxi, p. 342.

Agate, Gering, Lincoln; July and August. The latter specimen, determined by Professor Fernald, seems to approach the above species. The two are very closely allied, and the characters given in the foregoing table are not always constant, so that it is often difficult to distinguish between the two.

Chlorion harrisi H. Fernald.

1856. *Sphex apicalis* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 262.

1906. *Chlorion (Isodontia) harrisi* H. Fernald, *Proceedings of the U. S. National Museum,* xxxi, p. 359.

Quite common throughout the entire state. Glen, Broken Bow, West Point, Cedar Bluffs, Lincoln, Weeping Water. Flies from June to August.

Chlorion elegans (F. Smith).

1856. *Sphex elegans* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 262.

1906. *Chlorion (Isodontia) elegans* H. Fernald, *Proceedings of the U. S. National Museum,* xxxi, p. 361.

Five specimens of this pretty species from Glen, during August, taken for the most part flying along the high adobe buttes. This is the most eastern record, excepting a doubtful one from Florida.

Chlorion lucae (Saussure).

1867. *Sphex lucae* Saussure, *Reise d. Novara. Hymenoptera,* p. 41.

1906. *Chlorion (Proterosphex) lucae* H. Fernald, *Proceedings of the U. S. National Museum,* xxxi, p. 365.

A single specimen of this species was taken at Glen, during the expedition of August, 1905.

Chlorion pennsylvanicum (Linnaeus).

1763. ***Sphex pennsylvanica*** **Linnaeus, *Systema Naturae,* 12th edition, i, p. 941.**

1906. ***Chlorion*** *(Proterosphex) pennsylvanicum* H. **Fernald, *Proceedings of the U. S. National Museum,* xxxi, p. 405.**

Ranges across the entire state, but is uncommon in the western portion. Specimens have been taken at Glen, West Point, Lincoln, and Union. Flies from June to September. This wasp is easily recognized by its large size and matte black color.

Chlorion ichneumoneum (Linnaeus).

1758. ***Apis ichneumonea*** **Linnaeus, *Systema Naturae,* 10th edition, i, p. 578.**

1906. *Chlorion (Proterosphex) ichneumoneum* H. Fernald, ***Proceedings of the U. S. National Museum,*** xxxi, p. 399.

This beautiful and widely distributed species is found throughout the entire state, the collection containing specimens from Glen, Warbonnet canyon, Carns, West Point, Lincoln, and Union. Flies from June to August. Visits flowers of *Petalostemon, Melilotus,* and *Euphorbia.*

Family **STIZIDAE**

KEY TO THE GENERA

Marginal cell much shorter than the first cubital; spurs of hind tibiae short in both sexes, not enlarged; no pygidium, at the most with two short ridges on each side of apical portion of last dorsal abdominal segment; abdomen of the male with three spines at apex ..... ***Stizus***

Marginal cell about twice as long as first cubital; spurs of hind tibiae enlarged in the female, and the pygidium well developed; abdomen of the male with a single spine at apex..... ***Sphecius***

Genus **Stizus** Latreille

Stizus unicinctus Say.

1823. *Stizus unicinctus* Say, *Western Quarterly Reporter,* ii, p. 77.

1895. *Stizus unicinctus* Fox, *Proceedings of Academy of Natural Sciences of Philadelphia,* p. 268.

Rather common throughout the entire state. Sioux county, Pine Bluffs, Carns, Trenton, and Lincoln, during July and Au-

gust, on *Melilotus alba* and *Asclepias* sp. Readily recognized by the single red band on the abdomen.

Genus **Sphecius** Dahlbom

Sphecius speciosus (Drury).

1773. *Sphex speciosus* Drury, *Illustrations of Natural History,* ii, p. 71.

1895. *Sphecius speciosus* Fox, *Proceedings of Academy of Natural Sciences of Philadelphia,* p. 265.

This magnificent insect is occasionally met with in Nebraska, the collection containing specimens from Carns and Lincoln, taken in July (W. D. Pierce, F. C. Kenyon).

Family **NYSSONIDAE**

KEY TO THE SUBFAMILIES

A. Marginal cell always broadly truncate at apex, with an appendage; antennae inserted close to clypeus, or very close to the clypeal suture .....ASTATINAE

AA. Marginal cell always pointed at apex, never truncate, and without an appendage; antennae inserted far above the clypeus, always away from the clypeal suture.

B. Front wings with the second cubital cell petiolate, rarely triangular, sessile; mesopleural furrow wanting or subobsolete, incomplete posteriorly.

C. Metathorax with the superior hind angles always acute or produced into stout teeth or spines; pronotum dorsally short, narrowly transverse; forms broad, robust, NYSSONINAE

CC. Metathorax with superior hind angles unarmed, rounded or obtuse; pronotum dorsally not short, subquadrate; forms elongate .....ALYSONINAE

BB. Front wings with the second cubital cell broadly sessile, never triangular or petiolate, and receiving both recurrent nervures; mesopleural furrow usuallv deeply and sharply defined, complete .....GORYTINAE

Subfamily **ASTATINAE**

KEY TO THE GENERA

Marginal cell along the costal margin much longer than the stigma; eyes in the male holoptic.....*Astatus*

Marginal cell along the costal margin not longer than the stigma, most frequently shorter; eyes in the male normal, not holoptic; tarsal comb long, distinct; tibiae spinous.....*Diploplectron*

Genus **Astatus** Latreille

SYNOPSIS OF THE SPECIES

Insect without red markings..... 1
Insect with at least the base of abdomen red..... 2
1. Pubescence of thorax whitish.....*unicolor*
1. Pubescence of thorax black.....*nubeculus*
2. Marginal cell distinctly shorter than the first submarginal; metanotum finely granulate .....*asper*
2. Marginal cell generally as long as or longer than the first submarginal; metanotum rather coarsely reticulate..... 3
3. Metanotum coarsely reticulated, with a central longitudinal ridge, *bicolor*
3. Metanotum more finely reticulate, without a longitudinal ridge down the center.....*nevadicus*

Astatus unicolor Say.

1824. *Astata unicolor* Say, *Long's Expedition*, ii, Appendix, p. 337.
1859. *Astata unicolor* Say, Leconte edition, i, p. 228.
1893. *Astatus unicolor* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 539.

Eight male specimens taken at Weeping Water and Lincoln, from June to September (H. S. Smith).

Astatus nubeculus Cresson.

1865. *Astata nubecula* Cresson, *Proceedings of the Entomological Society of Philadelphia*, iv, p. 466.
1893. *Astatus nubeculus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 543.

Three males from Sioux county. Easily recognizable from the above species by the black pubescence.

Astatus bicolor Say

1823. *Astata bicolor* Say, *Western Quarterly Reporter*, ii, p. 78.
1859. *Astata bicolor* Say, Leconte edition, i, p. 166.
1893. *Astatus bicolor* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 540.

This insect ranges across the entire state, having been taken at Lincoln, Weeping Water, and Glen, June to August (P. R. Jones, W. D. Pierce, H. S. Smith). This and the following species have red abdomens generally tipped with black in the males.

Astatus asper Fox.

1893. *Astatus asper* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 546.

A single female from Glen, August 13, 1906 (H. S. Smith). In this specimen the apical half of the wings is very dark, the basal half hyaline.

Astatus nevadicus Cresson.

1881. *Astata nevadica* Cresson, *Transactions of the American Entomological Society,* ix, p. v.

1893. *Astatus nevadicus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 540.

Two females from Glen, August 20, 1906 (P. R. Jones, H. S. Smith).

Genus **Diploplectron** Fox

Diploplectron ferrugineus Ashmead.

1899. *Diploplectron ferrugineus* Ashmead, *Entomological News,* x, p. 99.

Two specimens of this interesting and rare little insect were taken at Glen, on August 14 and 28, 1906 (L. Bruner, P. R. Jones). Neither of the specimens has the wings clouded or the apical segments black, as described by Dr. Ashmead, and one specimen has no black coloring whatever. It may prove to be a distinct species, but these characters are quite variable in this subfamily.

Subfamily **NYSSONINAE**

KEY TO THE GENERA

Cubitus in hind wings originating beyond the transverse median nervure.

Hind tibiae strongly serrated on the hind margin, and also more or less spinous; lateral margins of scutellum more or less strongly reflexed, the postscutellum bilobed; apex of male abdomen terminating in four teeth.....*Paranysson*

Hind tibiae with feeble spines, never serrate; lateral margins of scutellum more or less margined, the postscutellum normal; apex of abdomen of male terminating in two teeth.....*Brachystegus*

Cubitus in hind wings originating before the transverse median nervure or interstitial with it: hind tibiae usually spinous, but not serrate on hind margin; scutellum normal; apex of abdomen of male terminating in two teeth.....*Nysson*

Genus **Paranysson** Guerin

Paranysson texanus (Cresson).

1872. *Nysson texanus* Cresson, *Transactions of the American Entomological Society*, iv, p. 223.

1896. *Nysson texanus* Fox, *Journal of the New York Entomological Society*, iv, p. 12.

Five specimens from Glen, August 20, 1906 (H. S. Smith).

Genus **Brachystegus** Costa

SYNOPSIS OF THE SPECIES

Abdomen entirely black; legs reddish.....*mellipes*
Abdomen more or less red..... 1
1. Only basal segment of abdomen red; broader, more robust.....*bellus*
1. Abdomen entirely red, with yellow markings; more slender, *metathoracicus*

Brachystegus mellipes (Cresson).

1882. *Nysson mellipes* Cresson, *Transactions of the American Entomological Society*, ix, p. 279.

1896. *Nysson mellipes* Fox, *Journal of the New York Entomological Society*, iv, p. 15.

I have in the collection two specimens of this species taken at Glen.

Brachystegus bellus (Cresson).

1882. *Nysson bellus* Cresson, *Transactions of the American Entomological Society*, ix, p. 280.

1896. *Nysson bellus* Fox, *Journal of the New York Entomological Society*, iv, p. 16.

A unique female from the same locality as the above.

Brachystegus metathoracicus, n. sp.

♀. Length 4–5 mm. Front with large, scattered punctures, the intervening spaces filled with minute ones; face silvery below antennae; mandibles and antennae dark rufous. Prothorax black with a white line above which extends to and includes the tubercles; mesonotum coarsely punctured, almost rugose, pleura more finely punctured; scutellum margined laterally and with a whitish transverse spot above. Metanotum and metapleura rufous; posterior face of metathorax with about five distinct carinae, converging below. Abdomen entirely rufous, segments 1–5 each with a lateral whitish spot, and with fairly coarse well-separated punctures; pygidial area twice as long as broad, and slightly margined laterally. Legs entirely reddish, as are also the posterior coxae. Wings somewhat clouded.

♂. Unknown.

Type, a female taken at Glen, Sioux county, Nebraska, altitude 4,000 ft., August 21, 1906 (H. S. Smith). One paratype, same locality and date as type (P. R. Jones). Related to *bellus,* yet very distinct from that species.

Genus **Nysson** Latreille

SYNOPSIS OF THE SPECIES

Females 1
Males 4
1. Basal segment of abdomen red; size small, 5–6 mm. long...*rufiventris*
1. Abdomen not at all red..... 2
2. Scutellum faintly margined laterally, covered with large sparse, shallow punctures; spots on the first abdominal segment the largest..... 3
2. Scutellum not margined laterally, but strongly and closely punctured; puncturation of head and mesonotum very close; spots on first abdominal segment same size as those on remaining segments .....*fidelis*
3. Pygidial area broad, subtruncate at tip, with large somewhat confluent punctures; spots on first abdominal segment almost covering the entire segment; size large, 11–13 mm....*plagiatus*
3. Pygidial area narrower, rounded at tip, longitudinally rugoso-punctate; spots on first abdominal segment transverse, confined to apical portion of segment.....*aequalis*
4. Last dorsal segment ciliated between the teeth..... 5
4. Last dorsal segment not ciliated between the teeth, length 5–6 mm. 7
5. Last dorsal segment not prominent between the teeth, subtruncate; lateral spots on the first dorsal segment large, covering almost the entire segment.....*plagiatus*
5. Last dorsal segment prominently angulate between the teeth; spots on the first segment transverse, confined to apical portion of segment 6
6. Size large, 10–11 mm.; tubercles, collar and scutellum yellow, scape and femora entirely ferruginous; ventral punctures deep .....*aequalis*
6. Size smaller, 7–8 mm.; tubercles, collar and scutellum without yellow markings; scape and anterior and intermediate femora piceous; ventral punctures shallow.....*angularis*
7. Abdomen reddish, at least basally.....*rufiventris*
7. Abdomen not at all reddish.....*simplicicornis*

Nysson rufiventris Cresson.

1882. *Nysson rufiventris* Cresson, *Transactions of the American Entomological Society,* ix, p. 283.

1896. *Nysson rufiventris* Fox, *Journal of the New York Entomological Society,* iv, p. 15.

I have eleven specimens of this species from Glen, August 13 to 21, 1906, taken on flowers of *Cleome serrulata* and *Helianthus* sp.

Nysson simplicicornis Fox.

1896. *Nysson simplicicornis* Fox, *Journal of the New York Entomological Society,* iv, p. 15.

Two males from same locality and date as above, and which seem to be identical to *rufiventris,* excluding the color of the abdomen.

Nysson plagiatus Cresson.

1882. *Nysson plagiatus* Cresson, *Transactions of the American Entomological Society,* ix, p. 276.

1896. *Nysson plagiatus* Fox, *Journal of the New York Entomological Society,* iv, p. 13.

The largest Nyssonid; four specimens, both sexes, from West Point and Glen, June to August.

Nysson aequalis Patton.

1879. *Nysson aequalis* Patton, *Canadian Entomologist,* xi, p. 212.

1896. *Nysson aequalis* Fox, *Journal of the New York Entomological Society,* iv, p. 13.

A pair of this species was taken at West Point, June, 1887 (L. Bruner).

Nysson angularis, n. sp.

♂. Length 7–8 mm. Black with yellow markings. Head with large well-separated punctures, clypeus sparsely punctured; front and clypeus clothed with a dense covering of yellowish white pubescence; mandibles dark rufous; antennae black, next to the last joint considerably larger than the last, and slightly produced beneath at apex. Prothorax with a few large shallow punctures, and covered with a dense coat of short, almost golden pubescence. Mesonotum, scutellum, and pleura coarsely punctured, the punctures on the pleura often confluent. Metathorax coarsely reticulate, metathoracic spines with bright yellow tips; a pubescent area just above each spine. Abdomen both dorsally and ventrally with strong, well-defined, well-separated punctures, those on the venter more sparse, and clothed with a silky pubescence; a transverse yellow spot on each side of segments 1–3, sometimes on 4; apices of both dorsal and ventral segments with white fasciae; apical segment with a strong tooth on each side, between which is a well-defined prominence, also a few cilia. Legs entirely

red, excepting the anterior and intermediate femora, which are piceous with the apices reddish. Wings hyaline, faintly clouded.

♀. Unknown.

Type, a male taken at West Point, Nebraska (L. Bruner). One paratype, same locality. Besides differing from *aequalis* as indicated in the key, the mesopleura are much less convex, not nearly so much bulged outwardly.

Nysson fidelis Cresson.

1882. *Nysson fidelis* Cresson, *Transactions of the American Entomological Society,* ix, p. 282.

1896. *Nysson fidelis* Fox, *Journal of the New York Entomological Society,* iv, p. 15.

A single female, taken in Warbonnet canyon, Sioux county.

Subfamily **ALYSONINAE**

KEY TO THE GENERA

Submedian cell of anterior wings a little shorter than the median on the median nervure; abdomen with a pale spot on each side of the second dorsal segment .....*Alyson*

Submedian cell of anterior wings much longer than the median on the median nervure; abdomen without a pale spot on each side of the second dorsal segment .....*Didineis*

Genus **Alyson** Jurine

SYNOPSIS OF THE SPECIES

Median area of metanotum triangular; at least first abdominal segment, and usually part of second, in male red, in female black; clypeus yellow, legs reddish.....*triangulifer*

Median area of metanotum not triangular, usually U-shaped..... 1

1. Thorax and abdomen black, pygidium red; legs fulvous, partly yellowish in male; tubercles yellow.....*radiatus*

1. Thorax, abdomen, and legs entirely reddish; head dark.....*melleus*

Alyson triangulifer Provancher.

1887. *Alyson triangulifer* Provancher, *Additions a la Faune du Canada, Hymenoptera,* p. 272.

1894. *Alyson trianguliferus* Fox, *Entomological News,* v, p. 86.

One female, three males, taken at West Point, during June (H. S. Smith), and at Glen, August 14 (P. R. Jones).

Alyson radiatus Fox.

1894. *Alyson radiatus* Fox, *Entomological News,* v, p. 87.

Two females, West Point, June (H. S. Smith). These specimens have the pygidium red and the tubercles yellow, characters not mentioned by Fox in his original description of the species. It may prove to be distinct. With the exception of the metanotal sculpture this is very much like the male of the above species.

Alyson melleus Say.

1837. *Alyson melleus* Say, *Boston Journal of Natural History*, i, p. 380.
1859. *Alyson melleus* Say, Leconte edition, ii, p. 762.
1894. *Alyson melleus* Fox, *Entomological News*, v, p. 77.

Three females, Glen during August, and West Point during June (H. S. Smith). Readily distinguished by its being almost entirely ferruginous.

Genus **Didineis** Wesmael

Didineis texana (Cresson).

1872. *Alyson texanus* Cresson, *Transactions of the American Entomological Society*, iv, p. 226.
1894. *Didineis texana* Fox, *Entomological News*, v, p. 127.

A single male of this insect was taken at Lincoln, on September 8, 1899. This species may be separated from the others known from North America by the cylindrical, not nodose, joints of the flagellum in the male, and the black head and thorax in the female.

Subfamily **GORYTINAE**

KEY TO THE GENERA

Cubitus in hind wings interstitial or originating only a little before the transverse median nervure.
  Cubitus in the hind wings interstitial; triangular area of metanotum not sharply defined, but striate or coarsely rugose.....*Hoplisoides*
  Cubitus in hind wings most frequently originating a little before the transverse median nervure; triangular area of metanotum always well defined, the enclosure always longitudinally striate.....*Hoplisus*
Cubitus in hind wings originating far before the transverse median nervure; triangular area of metanotum sharply defined by grooved lines, the enclosure smooth, polished, not striate, or at most only slightly striate laterally at base.....*Pseudoplisus*

Genus **Hoplisoides** Gribodo

SYNOPSIS OF THE SPECIES

Females 1
Males 4
1. Metathorax and first segment of abdomen more or less reddish; legs red and yellow.....*tricolor*
1. Metathorax and first abdominal segment not both reddish..... 2
2. Dorsal surface of pygidium yellow; lateral carinae of pygidium short; punctures strong and widely separated; yellow bands of abdomen wide.....*pygidialis*
2. Dorsal surface of pygidium black..... 3
3. Legs entirely red; antennae almost entirely ferruginous; pygidium with coarse sparse punctures and quite strong lateral carinae; yellow abdominal bands uniform in width....*barbatulus*
3. Legs yellow, red, and black; antennae yellow and black; pygidium with coarse irregular punctures, and without lateral carinae; abdominal bands 2 and 3 suddenly widened laterally .....*confertus*
4. Last ventral segment bifid; first abdominal segment subpetiolate; wings entirely fuliginous; antennae rufous, *laminiferus*
4. Last ventral segment not bifid· first abdominal segment not subpetiolate; wings hyaline with a dark spot..... 5
5. Fifth ventral segment armed on each side with a strong projection .....*confertus*
5. Fifth ventral segment not armed with a projection..... 6
6. Eighth and ninth joints of flagellum with a prominence beneath 8
6. Eighth and ninth joints simple beneath..... 7
7. Triangular area of metanotum distinctly striated; metathorax and first abdominal segment not red, the pygidium yellow, *pygidialis*
7. Triangular area of metanotum smooth; metathorax and first abdominal segment more or less red.....*tricolor*
8. Clypeus with a bunch of long hairs in each lateral angle; yellow abdominal bands 2 and 3 suddenly broadened laterally .....*microcephalus*
8. Clypeus with hairs in lateral angle not long nor in a bunch; abdominal bands on 2 and 3 gradually widened....*barbatulus*

Hoplisoides confertus (Fox).

1895. *Gorytes confertus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 525.

Three male specimens of this interesting species were taken at

3. Mesonotum and abdomen punctured..... 4
   4. Body finely and closely punctured, front almost granulate; posterior and intermediate tarsi black basally; anterior margin of clypeus strongly doubly sinuose; truncations of metathorax impunctate .....*tarsatus*
   4. Body, and especially the thorax and occiput, more sparsely punctured; posterior and intermediate tarsi honey yellow.. 5
5. Female with legs rufous and pygidium piceous dorsally; yellow band of second abdominal segment with two black dots (sometimes broken posteriorly, forming two black notches); male with black legs and prominent front; mesonotum with two or four longitudinal yellow marks, *albifrons*
5. Female with legs black and pygidium mostly yellowish white; second abdominal band without two black dots or notches posteriorly; (male unknown) .....*politus*
   6. Ground color of basal segment of abdomen red; eyes strongly converging above, especially in the male; femora black, tipped with yellow .....*basilaris*
   6. Ground color of basal segment of abdomen black..... 7
7. Abdomen and metanotum finely and distinctly punctured; eyes of male strongly convergent above, distance between them at base of clypeus at least twice as great as the shortest distance between them above 8
7. Abdomen coarsely pitted above; eyes of male not so strongly convergent above, the distance between them at base of clypeus not more than one-half greater than the shortest distance above 9
   8. Distance between eyes of male above not greater than length of first joint of flagellum; first eight joints of antennae of male yellow above; male with black pubescence; fore femora of female black or brown above.....*sanbornii*
   8. Distance between eyes of male above nearly twice as great as length of first joint of flagellum; first four or five joints only of antennae of male yellow above; male with grayish or fulvous pubescence; fore femora of female honey yellow above .....*gloriosus*
9. Legs black and yellow; predominating color of abdomen yellow; female and sometimes male with yellowish longitudinal stripes on mesonotum; abdomen of female mostly yellow ventrally .....*inversus*
9. Legs more or less yellow; mesonotum without longitudinal stripes. 10
   10. Abdomen beneath yellow; mesonotum and occiput sparsely punctured, front finely punctato-striate; flagellum almost entirely fulvous .....*flavifrons*

ocelli; the pygidium has well-defined lateral ridges and is distinctly and rather coarsely punctured. Looks very much like some of the darker specimens of *tricolor,* but may easily be distinguished by the width of face, shape of clypeus, and color of metathorax and first abdominal segment.

Hoplisoides laminiferus (Fox).

1895. *Gorytes laminiferus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 532.

Two males of this species were collected at West Point, on June 25 (P. R. Jones). The wings are not yellow, but are dark, and the marginal cell is not appreciably darker than the remaining portions of the wing. Fox's description states that the ventral segments 2–4 are entirely yellow, but in the specimens before me they have only a narrow apical band of that color. This species is easily separated from the other members of the genus found in Nebraska by the dark wings and peculiar habitus, which more resembles *Pseudoplisus* than *Hoplisoides.* It looks superficially very much like *P. phaleratus.*

Genus **Hoplisus** Lepeletier

SYNOPSIS OF THE SPECIES

Posterior face of metathorax almost smooth; triangular area of metanotum only basally striated; metathorax with two yellow spots, *simillimus*

Posterior face of metathorax coarsely reticulate; triangular area of metanotum strongly ridged throughout..... 1

1. Tubercles and supraclypeal area black; yellow of inner eye margins narrow; metathorax with two yellow spots; apical abdominal segments without yellow.....*elegantulus*

1. Tubercles and supraclypeal area yellow; yellow of inner eye margins broad; metathorax without yellow spots; apical abdominal segments yellow dorsally.....*albosignatus*

Hoplisus simillimus (F. Smith).

1856. *Gorytes simillimus* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 367.

1867. *Gorytes ephippiatus* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 426.

1895. *Gorytes simillimus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 536.

One female, Glen, August 8, 1905; another taken at Carns, July 1, 1902 (W. D. Pierce); one male, Warbonnet canyon. The two females have the markings reddish yellow, due, no doubt, to having been left in the cyanide bottle too long.

Hoplisus elegantulus, n. sp.

♂. Length 8.5 mm. Ground color shining black. Head black; eyes quite strongly convergent below, the distance between them equal to slightly more than one-half that between them on a line drawn through the posterior ocelli; interior eye margins slightly raised; front with punctures dense, appearing to be almost granulate; ocelli situated on a slight prominence, the distance between the posterior ones equal to that between them and the nearest eye margin; before the anterior ocellus is a short longitudinal depression; occiput and cheeks finely and more sparsely punctured, shining; clypeus convex, quite closely punctured excepting the disk, on which the punctures are more sparse; clypeus and labrum entirely yellow; mandibles black, rufous apically, quite strongly punctured basally; flagellum brownish black, scape yellow beneath; lower half of inner eye margins marked with yellow; clypeus, mandibles, and front with a few short silvery hairs. Prothorax short, entirely yellow above. Mesonotum entirely black, shining, with a few shallow punctures; suture between mesonotum and scutellum with about ten strong foveae; mesopleura shining black with sparse punctures; tubercles black, a reniform spot behind them yellow; tegulae rufous with a yellowish blotch; posterior half of scutellum yellow, postscutellum black; triangular area of metanotum with about twelve strong longitudinal ridges which are extended to the posterior face, the lower portion of which, together with the posterior portion of the metapleura, becomes irregularly coarsely reticulate; metathoracic epimeron shining, with sparse punctures; a small yellow dot at the latero-posterior corners of the metathorax. Abdomen shining black, basal segment impunctate, and with a yellow band which is strongly notched anteriorly in the middle; second segment with a few fine punctures apically and a narrow yellow band; next three segments somewhat more distinctly punctured, each with a narrow yellow apical band, and with a sparse covering of short reddish hairs; the two remaining segments without yellow markings, apical segment with a process; venter shining black, finely punctured; second ventral segment with a narrow yellow band apically. Anterior coxae black, femora black, reddish basally and yellowish apically; tibiae yellow with a longitudinal black spot outwardly; tarsi entirely yellow; intermediate and posterior coxae with a yellow dot; intermediate femora, tibiae and tarsi as anterior ones; posterior tibiae yellow, black basally, tarsi piceous. Wings hyaline, marginal cell dark, veins dark and slightly margined with smoky.

♀. Unknown.

Type, a male taken at Glen, Sioux county, Nebraska, August

19, 1906; altitude 4,000 ft. (P. R. Jones). Related to *albosignatus* Fox, but differs from that species as indicated in the above synopsis.

Hoplisus albosignatus (Fox).

1892. *Gorytes albosignatus* Fox, *Canadian Entomologist,* xxiv, p. 152.
1895. *Gorytes albosignatus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 533.

One female, Sioux county, May; two males, Warbonnet canyon, June 8, 1901, on *Symphoricarpus* sp. (M. Cary).

Genus **Pseudoplisus** Ashmead

SYNOPSIS OF THE SPECIES

Females 1
Males 5
1. Suture between metanotum and scutellum not foveolate; wings yellowish ferruginous; abdomen with short, silky, golden pubescence ..... *phaleratus*
1. Suture between metanotum and scutellum foveolate..... 2
2. Suture between metapleuron and metathoracic epimeron foveolate for entire length; clypeus entirely black; front, venter, and last three dorsal segments of abdomen with large punctures; suture between triangular enclosure and sides of metathorax foveolate..... *varipunctus*
2. Suture between metapleuron and metathoracic epimeron not foveolate 3
3. Wings hyaline, marginal cell darker; clypeus partly yellow; metathorax with two red spots; form robust..... *rufomaculatus*
3. Wings uniformly dark fuliginous; clypeus entirely dark; form more slender 4
4. Thorax black, ornamented with yellowish; second recurrent nervure interstitial with second transverse cubital, or nearly ..... *smithii*
4. Thorax reddish brown, ornamented with yellow; second recurrent nervure quite widely separated from second transverse cubital ..... *floridanus*
5. Suture between metanotum and scutellum foveolate..... 7
5. Suture between metanotum and scutellum not foveolate..... 6
6. Wings with a light yellowish cast; flagellum rather long, the joints rounded out beneath..... *phaleratus*
6. Wings dark fuliginous, the apex hyaline; flagellum shorter and somewhat clavate, the joints not rounded out beneath, *propinquus*

7. Wings hyaline, marginal cell darker; coxae red; form robust, *rufomaculatus*
7. Wings uniformly dark fuliginous; coxae black or dark brownish; form more slender and much longer..... 8
8. Thorax black, ornamented with yellowish; second recurrent nervure interstitial with second transverse cubital nervure, or nearly .....*smithii*
8. Thorax reddish brown, ornamented with yellow; second recurrent nervure not interstitial with second cubital nervure .....*floridanus*

Pseudoplisus phaleratus (Say).

1836. *Gorytes phaleratus* Say, *Boston Journal of Natural History*, i, p. 368.
1859. *Gorytes phaleratus* Say, Leconte edition, ii, p. 752.
1895. *Gorytes phaleratus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 537.

Thirteen specimens, both sexes, from West Point, Lincoln, Weeping Water, Carns, and Glen, thus ranging across the entire state. Quite variable as to size, but easily distinguished from the other members of the genus found in this state by the yellowish wings.

Pseudoplisus varipunctus, n. sp.

♀. Length 10 mm. Eyes strongly convergent below, the distance between them at base of clypeus about one-half that on a line drawn through the posterior ocelli; front with large, deep, widely separated punctures, almost pits, the spaces between which are microscopically punctured; impressed line quite strong; ocelli situated on a slight prominence, the posterior ones about as far apart as the distance to the nearest eye margin, and about twice as far apart as the distance to the anterior ocellus; occiput and cheeks smooth and shining, practically impunctate; clypeus strongly convex, as long in the middle as distance between eyes at base; strongly punctured as front, some of the punctures confluent; anterior margin of clypeus sinuate; disk of clypeus with a few long fulvous hairs; front with short, rather sparse, silvery ones; flagellum gradually thickened toward apex, the first three joints about twice as long as thick, the remaining joints not much longer than thick. Anterior portion of prothorax, the neck, fulvous on anterior margin, quite strongly punctured above, and bearing a coat of griseous pubescence; depressed space between neck and collar strongly foveolated. Mesonotum smooth, shining, microscopically punctured, anteriorly with four short parapsidal grooves; suture between mesonotum and scutellum foveolate; scutellum and postscutellum punctured as mesonotum; carina separating sternum from mesopleura very

strong and well developed; mesopleura finely punctured; suture between metapleuron and metathoracic epimeron strongly foveolate; triangular area of metathorax bounded by deep sutures which are foveolate, the enclosed area smooth excepting the strongly impressed longitudinal line; posterior face smooth excepting several deep pits at juncture of abdomen; metathorax with a fairly dense coat of golden pubescence. First dorsal segment of abdomen with pubescence similar to that of the metathorax; second segment with a few sparse punctures, more numerous laterally; remaining segments coarsely and regularly punctured, excepting the basal portions which work beneath the apical portions of the preceding segment; pygidial area almost twice as long as broad, with a few coarse punctures and strong lateral carinae; venter coarsely and sparsely punctured and with faint silvery pile; first segment with four strong longitudinal carinae at base, lateral carinae sharp. Tarsal comb consisting of nine broad spines or bristles, the basal joint bearing four, two single ones and a pair apically, second joint with a pair, third joint with a pair, and fourth joint with a single one; tibiae and tarsi quite strongly spinose. Wings rather dark, marginal cell darker, veins black.

COLORATION.—Ground color of insect rather dull black; clypeus entirely black; lower half of inner eye margin narrowly yellow; scape and basal portion of flagellum beneath rufous, darker above; mandibles and palpi ferruginous; collar above, tubercles, spot behind them, apical half of scutellum, fairly broad bands on first and second dorsal segments, narrow band on third usually interrupted in the middle, sometimes a faint line on the fourth, light yellow; legs except basal portion of femora, reddish.

Type, a female taken at West Point, Nebraska, June 25, 1906 (P. R. Jones). Paratypes, two females taken at the same place.

This species is apparently related to *rufomaculatus* in puncturation, but otherwise is quite different, as will be seen by a comparison of the two species. The large punctures of the front and abdomen are in strong contrast to those of the thorax. The punctures are much stronger and more distinct in *varipunctus*, the abdomen is more slender, the legs and antennae are rather darker, and it also lacks the red spots on the metathorax and the yellow on the clypeus; the sutures separating the triangular area from the metapleura and the metapleuron from the metathoracic epimeron are not foveolate in *rufomaculatus*.

Pseudoplisus rufomaculatus (Fox).

1895. *Gorytes rufomaculatus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 538.

A single female of this species was taken in the bad lands at

the mouth of Monroe canyon, in Sioux county, June 22, 1901, on *Helianthus* sp. (M. A. Carriker, Jr.). Seems to differ from the typical specimen in having yellow on the fourth dorsal abdominal segment.

Pseudoplisus propinquus (Cresson).

1868. *Gorytes propinquus* Cresson, *Transactions of the American Entomological Society,* i, p. 379.

1895. *Gorytes propinquus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 537.

A single male, taken at Glen, August 14, 1906 (L. Bruner). This specimen has only two black dots on the second dorsal segment in place of the usual band, and has four of the ventral segments banded with black. I call it *propinquus,* although Handlirsch says it is identical with *abdominalis.* The presence or absence of the foveae in the suture separating the mesonotum from the scutellum, it seems to me, is a sufficient character for separating the two.

Pseudoplisus smithii (Cresson).

1880. *Gorytes smithii* Cresson, *Transactions of the American Entomological Society,* viii, p. 18.

1895. *Gorytes smithii* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 537.

A single male, taken at West Point, June (L. Bruner). It has the second dorsal segment yellow apically instead of being entirely black as indicated in the description.

Pseudoplisus floridanus (Fox).

1890. *Hoplisus foveolata* Fox, *Entomological News,* i, p. 106.

1895. *Gorytes floridanus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 537.

A single male from the above locality. The male has been hitherto undescribed, and differs from the description of the female in having the entire basal abdominal segment yellow above, in having two reddish spots on the metathorax, and yellow bands on the remaining segments. These two species look very much alike, but may be readily separated by the characters given in the table.

Family **MELLINIDAE**

Genus **Mellinus** Fabricius

SYNOPSIS OF THE SPECIES

At least three basal segments of abdomen red; legs black and yellow; abdomen of female without yellow maculae.....*abdominalis*
Petiole only of abdomen red; remaining segments black with yellow maculae laterally; legs red and yellow.....*rufinodus*

Mellinus abdominalis Cresson.

1881. *Mellinus abdominalis* Cresson, *Transactions of the American Entomological Society,* ix, p. 39.
1894. *Mellinus abdominalis* Fox, *Entomological News,* v, p. 202.

Found only in the northwestern corner of the state, ten specimens of both sexes from Glen, August 20–21, (P. R. Jones, H. S. Smith) being before me. This species, as indicated in the above table, may be recognized by the almost entirely red abdomen.

Mellinus rufinodus Cresson.

1865. *Mellinus rufinodus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 475.
1894. *Mellinus rufinodus* Fox, *Entomological News,* v, p. 201.

One specimen from West Point, September (L. Bruner). The red first segment or petiole serves to distinguish this species from the other members of the genus.

Family **TRYPOXYLIDAE**

Genus **Trypoxylon** Latreille

SYNOPSIS OF THE SPECIES

Abdomen entirely black..... 1
Abdomen banded with reddish..... 2
1. Size large, 18 to 25 mm.; wings purplish black, body with black pile; metanotum punctured; posterior tarsi whitish...*albitarse*
1. Size small, 7 to 10 mm.; wings hyaline, apical margins darker; body with silvery pile; metanotum striated; posterior tarsi not white .....*frigidum*
2. Thorax, front and abdomen with beautiful golden pubescence; antennae with basal joints fulvous.....*texense*
2. Thorax, front and abdomen with silvery pubescence; antennae entirely black 3
3. Front with a strong projection; only slightly over one-half of dorsal portion of first abdominal segment black....*tridentatum*

3. Front with a longitudinal carina above antennae; entire dorsal surface of first abdominal segment black.....*rufozonalis*

Trypoxylon albitarse Fabricius.

1804. *Trypoxylon albitarse* Fabricius, *Systema Piezatorum*, p. 180.

1893. *Trypoxylon albitarse* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 474.

I have before me eight specimens of this large black species, both sexes, bred from the nests taken at Nebraska City and Lincoln. The insects emerged in March and in May.

Trypoxylon frigidum F. Smith.

1856. *Trypoxylon frigidum* F. Smith, *Catalogue of Hymenoptera in the British Museum*, iv, p. 381.

1893. *Trypoxylon frigidum* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 472.

A single male from Glen seems to be this species; it was taken August 13, 1906 (H. S. Smith). I have also a related species which is evidently new, but is in too poor condition to be described without more material at hand.

Trypoxylon texense Saussure.

1867. *Trypoxylon texense* Saussure, *Reise d. Novara, Zoology*, ii, *Hymenoptera*, p. 77.

1893. *Trypoxylon texense* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 475.

One female, Glen, August; two females, Culbertson, August.

Trypoxylon tridentatum Packard.

1867. *Trypoxylon tridentatum* Packard, *Proceedings of the Entomological Society of Philadelphia*, vi, p. 417.

1893. *Trypoxylon tridentatum* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 472.

Numerous specimens from Glen, August, 1906.

Trypoxylon rufozonale Fox.

1891. *Trypoxylon rufozonalis* Fox, *Transactions of the American Entomological Society*, xviii, p. 137.

1893. *Trypoxylon rufozonale* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 472.

A pair dug from their nest, a hole in a clay bank, Glen, August 13, 1906 (H. S. Smith). This nest was provisioned with twenty-two spiders.

Family **PHILANTHIDAE**

KEY TO THE SUBFAMILIES

Cubital vein in hind wings most frequently interstitial, or originating before the transverse median vein, very rarely originating slightly beyond it; hind femora not much thickened at apex, and neither squarely truncate nor produced beneath; metanotum most frequently without a well-defined triangular area at base.....PHILANTHINAE

Cubital vein in hind wings originating at considerable distance beyond the transverse median vein; hind femora more or less thickened at apex, and squarely truncate and produced beneath; metanotum with a well-defined triangular area at base.....CERCERINAE

Subfamily **PHILANTHINAE**

KEY TO THE GENERA

Eyes more or less emarginate within; submedian cell of posterior wings as long as or slightly longer than the median on the median vein; female without a pygidial area.....*Philanthus*

Eyes entire within; submedian cell of posterior wings much shorter than the median on the median vein; female with a distinct pygidial area. *Aphilanthops*

Genus **Philanthus** Fabricius

SYNOPSIS OF THE SPECIES

Small species, 7 to 10 mm. in length; yellow bands of abdomen more or less emarginate, irregular or wavy; punctures of abdomen shallow; segments, excepting between first and second, not strongly constricted 1

Larger species, 9 to 16 mm. in length; yellow bands of abdomen as a rule more regular on their anterior and posterior margins, although often interrupted in the middle; punctures of abdomen deep in the small species; constrictions between segments rather strong 6

1. Wings hyaline, transparent..... 2
1. Wings faintly tinged with fuscous..... 3
   2. Head, thorax, and venter with long white pubescence; flagellum blackish beneath, basal joints yellow.....*albopilosus*
   2. Head, thorax, and venter with short, sparse white pubescence; flagellum pale testaceous, first basal joint only, yellow, in female .....?*psyche*
3. Mesonotum and abdomen impunctate, highly polished; second abdominal segment with two broad lunate marks, following segments with narrower yellow bands, basal segment sometimes with two small spots, sometimes immaculate, *bilunatus*

3. Mesonotum and abdomen punctured..... 4
   4. Body finely and closely punctured, front almost granulate; posterior and intermediate tarsi black basally; anterior margin of clypeus strongly doubly sinuose; truncations of metathorax impunctate .....*tarsatus*
   4. Body, and especially the thorax and occiput, more sparsely punctured; posterior and intermediate tarsi honey yellow.. 5
5. Female with legs rufous and pygidium piceous dorsally; yellow band of second abdominal segment with two black dots (sometimes broken posteriorly, forming two black notches); male with black legs and prominent front; mesonotum with two or four longitudinal yellow marks, *albifrons*
5. Female with legs black and pygidium mostly yellowish white; second abdominal band without two black dots or notches posteriorly; (male unknown) .....*politus*
   6. Ground color of basal segment of abdomen red; eyes strongly converging above, especially in the male; femora black, tipped with yellow .....*basilaris*
   6. Ground color of basal segment of abdomen black..... 7
7. Abdomen and metanotum finely and distinctly punctured; eyes of male strongly convergent above, distance between them at base of clypeus at least twice as great as the shortest distance between them above 8
7. Abdomen coarsely pitted above; eyes of male not so strongly convergent above, the distance between them at base of clypeus not more than one-half greater than the shortest distance above 9
   8. Distance between eyes of male above not greater than length of first joint of flagellum; first eight joints of antennae of male yellow above; male with black pubescence; fore femora of female black or brown above.....*sanbornii*
   8. Distance between eyes of male above nearly twice as great as length of first joint of flagellum; first four or five joints only of antennae of male yellow above; male with grayish or fulvous pubescence; fore femora of female honey yellow above .....*gloriosus*
9. Legs black and yellow; predominating color of abdomen yellow; female and sometimes male with yellowish longitudinal stripes on mesonotum; abdomen of female mostly yellow ventrally .....*inversus*
9. Legs more or less yellow; mesonotum without longitudinal stripes. 10
   10. Abdomen beneath yellow; mesonotum and occiput sparsely punctured, front finely punctato-striate; flagellum almost entirely fulvous .....*flavifrons*

10. Abdomen beneath black; flagellum mostly black..... 11
11. Abdomen dorsally and mesonotum with large deep pits; first segment usually immaculate, second with a quite broad band basally which is widened laterally, remaining segments with narrow apical bands; occiput sparsely punctured .....*gibbosus*
11. Abdomen and mesonotum with large punctures, but much closer; first segment with a widely interrupted (usually) band; occiput closely punctured; apical joint of male antennae strongly compressed and curved; insect larger and much more robust than the above species.....*vertilabris*

Philanthus (?) **psyche** Dunning.

1896. *Philanthus psyche* Dunning, *Entomological News,* vii, p. 288.
1904. *Philanthus psyche* Viereck & Cockerell, *Journal of the New York Entomological Society,* xii, p. 143.

Six specimens of a pretty little wasp from Glen, August 20, 1906, I have identified as this species, although I am not certain of it, as it seems to be smaller than the description indicates. Some specimens have the scutellum white and some have it immaculate. Only one has indications of the longitudinal yellow lines on the mesonotum as described by Dunning, but this character is variable in any of the species possessing it. This and the three following forms seem to be very closely allied, and a thorough study of a larger series of these and their relatives, together with the type specimens, will probably result in a marked reduction in the number of species.

Philanthus albopilosus Cresson.

1865. *Philanthus albopilosus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 91.
1866. *Philanthus albopilosus* Packard, *Ibid.,* vi, p. 56.

Glen, August 17, 1906, at flowers of *Solidago* sp. (H. S. Smith); Warbonnet canyon, July 21, 1901, on Borage (M. Cary).

Philanthus pacificus Cresson.

1879. *Philanthus pacificus* Cresson, *Transactions of the American Entomological Society,* vii, p. 32.
1904. *Philanthus pacificus* Viereck & Cockerell, *Journal of the New York Entomological Society,* xii, p. 144.

Glen, August 12 to 19, 1906 (P. R. Jones).

Philanthus politus Say.

1824. *Philanthus politus* Say, *Long's Expedition,* ii, Appendix, p. 342.
1859. *Philanthus politus* Say, Leconte edition, i, pp. 113 and 232.
1865. *Philanthus politus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 94.

Warbonnet canyon, July 21, 1901, on Borage (M. Cary). May be distinguished from the above species by the slightly fuscous wings.

Philanthus albifrons Cresson.

1865. *Philanthus (Anthophilus) albifrons* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 101.
1904. *Philanthus albifrons* Viereck & Cockerell, *Journal of the New York Entomological Society,* xii, p. 144.

Both sexes from Warbonnet canyon and Glen, taken during the months of July and August. Although these specimens have the markings of a decided lemon yellow instead of white, the other characters, such as sculpture, lead me to place them here. The reddish femora in the female serve as a superficial character to separate this species from its allies.

Philanthus tarsatus, n. sp.

♀. Length 9 mm. Ground color black. Front above antennae finely and closely striato-punctate; occiput and vertex closely and finely punctured; hind ocelli about as close to each other as distance from them to inner eye margin; anterior margin of clypeus with four distinct lobes, the two central ones much the larger and the emargination between them quite deep; malar space about one-third as long as width of mandible at base; mandibles rather short and bluntly rounded. Collar of prothorax with corners rounded and with a strong impression centrally. Mesonotum finely and closely punctured and with a strong longitudinal impression medially; scutellum strongly convex, the disk more sparsely punctured and with a distinct median impression; postscutellum almost impunctate; mesopleura with coarse irregular punctures, the spaces between them being minutely punctured, punctures of upper portion of mesothoracic episternum the most dense; metanotum and metapleura with medium punctures, the metanotum bearing an impression centrally just before the truncation, the latter region being impunctate, forming a V-shaped enclosure; posteriorly the metathorax has three distinct impressions. Abdomen rather finely punctured, close basally and rather sparse apically, the dorsal surface of the pygidium impunctate; venter with medium close punctures. Tibiae and tarsi strongly spinose, the tarsal comb consisting of eleven or twelve spines.

Coloration as follows: scape of antennae black, white beneath and with a white dot apically above; pedicellum black; flagellum black, first joint white beneath, remaining joints fulvous beneath; mandibles except tips, clypeus except a black dot at the place where the posterior and lateral lobes join, sides of face up to emargination of eyes, lobe between antennae extending to the same height, narrow elongate spot back of eyes, collar of prothorax entirely, tubercles, spot back of them, tegulae and base of anterior wing, postscutellum, irregular mark on scutellum in type, rather broad irregular interrupted band on first dorsal segment, entire band on second segment, irregular in front and with two notches posteriorly, narrow apical bands on three following segments broadened laterally, two dots on base of pygidium, tibiae excepting within, femora apically, all white with a faint greenish tint; anterior tarsi fuscous, intermediate and posterior ones piceous, spines paler; wings fuscous.

♂. Unknown.

Type, Glen, Sioux county, Nebraska, altitude 4,000 ft., August 17, 1906, on *Solidago* sp. (H. S. Smith); paratype, same label (P. R. Jones).

This species is quite robust in form, and the puncturation and dark tarsi serve to distinguish it.

Philanthus bilunatus Cresson.

1865. *Philanthus bilunatus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 97.

A common species ranging across the entire state but occurring most abundantly in the northwestern corner. The collection includes specimens from Glen and Warbonnet canyon in Sioux county, Carns, Lincoln, and Weeping Water. These were taken during the months of July and August, and have been found at flowers of *Helianthus* and *Monarda.* This species is distinct from any other form found in Nebraska by the practically impunctate body.

Philanthus flavifrons Cresson.

1865. *Philanthus flavifrons* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 102.

Three specimens of this species were taken by Mr. Carriker on Indian creek, in Sioux county, July 12, 1901, at flowers of *Malva* sp. Distinct by the yellow venter and peculiarly marked and sculptured head, which is densely striato-punctate in front below the ocelli, and almost impunctate back of them.

Philanthus gibbosus Fabricius.

1775. *Vespa gibbosa* Fabricius, *Systema Entomologiae*, p. 370.
1859. *Philanthus punctatus* Say, Leconte edition, i, p. 231.
1865. *Philanthus punctatus* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 100.
1891. *Philanthus gibbosus* Kohl, *Annalen naturhistorischen Hofmuseums, Wien*, vi, p. 348.

Very common throughout the entire state. Specimens have thus far been taken at Glen and Warbonnet canyon in Sioux county, at Crawford, West Point, Lincoln, and Weeping Water. Flies from June to September and has been found frequenting flowers of *Cleome serrulata, Melilotus alba,* and *Helianthus* sp. The coarse punctures or pits are very characteristic, as is also the comparatively broad band on the second dorsal abdominal segment.

Philanthus inversus Patton.

1879. *Philanthus inversus* Patton, *Bulletin of U. S. Geological Survey*, v, p. 359.
?1879. *Philanthus sublimis* Cresson, *Transactions of the American Entomological Society*, vii, p. xxxii.

Rather abundant, especially in the western portion. The collection contains specimens from Glen, Warbonnet canyon, and Lincoln. Flies during the months of August and September. I regard the species heretofore known as *sublimis* as the male of this species, as they are very much alike in essential characters and are usually found together.

Philanthus vertilabris Fabricius.

1804. *Philanthus vertilabris* Fabricius, *Systema Piezatorum*, p. 303.
1865. *Philanthus ventilabris* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 98.

Five females, Glen, August, 1906 (L. Bruner, H. S. Smith); one male, Sidney, August 12, 1901 (L. Bruner); one male, Lincoln, on *Euphorbia marginata* (W. D. Pierce). A very distinct species, recognized by the dull black color produced by the close puncturation, and by the red legs.

Philanthus basilaris Cresson.

1879. *Philanthus basilaris* Cresson, *Transactions of the American Entomological Society*, vii, p. xxxiii.

Both sexes were taken at Glen, during the expedition of 1906 (P. R. Jones, H. S. Smith). Very distinct by the red basal abdominal segments.

Philanthus sanbornii Cresson.

1865. *Philanthus sanbornii* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 89.
1866. *Philanthus Sanbornii* Packard, *Ibid.*, vi, p. 56.

One male, Lincoln, July (H. S. Smith); one male, West Point, June 28 (P. R. Jones). A beautiful species, recognizable by the strongly convergent eyes and black pubescence of male.

Philanthus gloriosus Cresson.

1865. *Philanthus gloriosus* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 86.
1866. *Philanthus gloriosus* Packard, *Ibid.*, vi, p. 55.

Two females, Lincoln and West Point, June 25 (P. R. Jones). The yellow bands described by Cresson as occurring on the ventral segments are wanting in these specimens. I have also three males, West Point and Glen, August (H. S. Smith); this sex is heretofore undescribed so far as is known to me. The abdomen is considerably more slender than that of the female, front more prominent, the yellow mark between and above the bases of the antennae extends up higher and the tibiae and tarsi are yellow. The femora are either red or black; the antennae are not reddish beneath. The specimen with the red femora has two ferruginous spots on the first dorsal segment of the abdomen. The pubescence varies from gray to brown.

Genus **Aphilanthops** Patton

SYNOPSIS OF THE SPECIES

Ground color of abdomen red; head and thorax with silvery pubescence; legs red ..... *quadrinotatus*
Ground color of abdomen black; legs black and yellow or testaceous and yellow 1
1. Size small, length 6–8 mm.; face with dense silvery pubescence; legs black and yellow; abdomen with bands broad, occupying two-thirds of the segment, and not interrupted, *laticinctus*

1. Size larger, length 9–13 mm.; face with sparse pubescence; legs testaceous and yellow in female, black or piceous and yellow in male; bands narrower and more interrupted...*frigidus*

Aphilanthops quadrinotatus Ashmead.

1890. *Aphilanthops quadrinotatus* Ashmead, *Bulletin of the Colorado Biological Association,* i, p. 7.

1898. *Aphilanthops quadrinotatus* Dunning, *Transactions of the American Entomological Society,* xxv, p. 24.

Rather abundant in Sioux county, flying around flowers of *Solidago* about the middle of August.

Aphilanthops laticinctus (Cresson).

1865. *Philanthus laticinctus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 91.

1898. *Aphilanthops laticinctus* Dunning, *Transactions of the American Entomological Society,* xxv, p. 22.

Also abundant at the same time and locality and on same flowers as above. There is a possibility of this being the unknown male of *quadrinotatus.*

Aphilanthops frigidus (F. Smith).

1856. *Philanthus frigidus* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 457.

1896. *Aphilanthops frigidus* Dunning, *Transactions of the American Entomological Society,* xxv, p. 20.

West Point, June (L. Bruner); Glen, April 12 (P. R. Jones). This latter specimen differs from the description in having the face entirely yellow below the antennae and in having a large yellow spot on the pleura; one of the West Point specimens shows the same variation; some of the females as well as the males have the venter spotted with yellow.

Subfamily **CERCERINAE**

KEY TO THE GENERA

Third cubital cell not quadrate, the third transverse cubital vein oblique, joining the marginal cell much before the apex; second cubital cell petiolate; dorsal abdominal segments 2–6 without a median transverse furrow or impression, but usually margined at apex .....*Cerceris*

Third cubital cell quadrate, the third transverse cubital vein joining the marginal cell at apex; second cubital cell petiolate in the fe-

male, not petiolate in the male; dorsal abdominal segments 2–4 in male, 2–6 in female, with a median transverse furrow or impression ..... *Eucerceris*

Genus **Cerceris** Latreille

SYNOPSIS OF THE SPECIES

Females 1
Males 16
1. Median lobe of clypeus with a prominent projection, raised anteriorly 2
1. Median lobe of clypeus without a prominent projection, but flattened, sometimes strongly convex..... 11
2. Insect entirely yellow with ferruginous sutures, no black excepting apex of antennae and mandibles; median lobe of clypeus with a strong lunate projection, the corners acute; length 20 mm. ..... *frontata*
2. Insect with some black on body, at least the triangular enclosure of the metanotum is black..... 3
3. Ground color of insect black, with yellow and sometimes with reddish markings 4
3. Greater part of body ferruginous; abdominal segments one and two with irregular yellow blotches on the sides; scutellum reddish, postscutellum yellow; triangular basal enclosure black, dull, with a few large punctures at the sides and a strong median furrow; median lobe of clypeus armed with a strong lunate projection..... *venator*
4. Median lobe of clypeus with a broad, short crescent-shaped projection, the distance between the points equal to the length of the first three joints of the flagellum; second dorsal segment of abdomen with a broad yellow band, remaining segments immaculate ..... *flavofasciata*
4. Median lobe of clypeus with a projection of various shapes, but never as broad as length of first three flagellar joints. 5
5. Basal segment of abdomen more or less ferruginous; legs fulvous and yellow 6
5. Basal segment black or black marked with yellow..... 7
6. Yellow abdominal bands broad, occupying almost entire dorsal surface of abdomen; projection of clypeus narrower apically than at base..... *vicina*
6. Yellow abdominal bands narrow, occupying about one-fourth of dorsal surface; projection of clypeus as broad at apex as at base, quite deeply concave..... *nebrascensis*
7. Scutellum marked with yellow..... 8
7. Scutellum black, postscutellum generally yellow..... 9

8. First dorsal segment with a narrow continuous band midway between base and apex; median projection of clypeus small, not very prominent; basal triangular enclosure of metathorax dull, with a few irregular punctures at the sides ..... *compar*

8. First dorsal segment with a short transverse yellow mark on disk; second segment entirely yellow excepting narrow basal portion; remaining segments with bands narrowed medially and widened laterally; pleura with a short spine below ..... *pleuralis*

9. Prominent portion of clypeus broader at widest place than long; band on second dorsal segment much narrowed medially, not much, if at all wider than those on the remaining segments ..... *occipitomaculata*

9. Prominent portion of clypeus longer than broad in widest place; band on second dorsal segment usually not narrowed medially, much wider than bands on remaining segments.... 10

10. Triangular area of metathorax quite strongly longitudinally striate ..... *imitatoria*

10. Triangular area of metathorax dull, irregularly striate at base and at lateral angles, larger than the above..... *clypeata*

11. Wings black; second dorsal segment with a broad yellow band, remaining segments without fasciae; size 14 to 20 mm. *fumipennis*

11. Wings sometimes smoky, but not deep blue-black as above; other segments besides the second with more or less broad fasciae or bands, size smaller..... 12

12. Second segment of abdomen immaculate, first and third segments with broad bands, following segments with narrow ones; legs ferruginous marked with yellow; costal half of anterior wing dark, remaining portion clear... *insolita*

12. Second segment of abdomen marked with yellow..... 13

13. First dorsal segment of abdomen red..... 15

13. First dorsal segment not red..... 14

14. Legs fulvous; venter banded with yellow; first dorsal segment of abdomen with a large yellowish white spot on each side, metathorax with a large ovate spot on each side; occiput with a large dot just back of the top of each eye ..... *fulvipediculata*

14. Legs black and yellow; venter not banded with yellow; metathorax without lateral spots; scutellum often with white spots; much more coarsely punctured, and abdominal segments more strongly constricted than the above, *finitima*

15. Metathorax black; clypeus black.....*rufinoda*
15. Metathorax, except enclosure, red.....*rufinoda crucis*
16. Apical joint of antennae much smaller in diameter at middle than the preceding joint, longer, and strongly bent medially 17
16. Apical joint of antennae not as above; if it is much longer than the preceding joint it is not strongly bent..... 23
17. Yellow band on second dorsal segment not much, if at all, wider medially than that on the third segment..... 18
17. Yellow band on second dorsal segment much wider medially, usually twice as wide or more than that on the third segment 19
18. Size larger, 13 mm.; clypeus convex, truncate apically....*sexta*
18. Size smaller, 8 to 11 mm.; clypeus depressed, front edge raised, forming a transverse ridge, tridentate apically, *occipitomaculata*
19. Triangular enclosure of metathorax entirely striate or striate at the sides 22
19. Triangular enclosure of metathorax not at all striate, generally smooth with punctures laterally..... 20
20. Apical segment of abdomen with a lateral brush of dense golden pubescence on each side of pygidium; ground color of abdomen generally black, sometimes that on the basal segment and rarely that on the entire abdomen ferruginous; body clothed with grayish pubescence; length 15–17 mm. .....*venator*
20. Apical segment of abdomen without a lateral brush of pubescence 21
21. Femora reddish with a black spot posteriorly, yellow basally in front, tibiae and tarsi more or less yellowish; antennae fulvous; front and clypeus entirely yellow; mandibles yellow basally; first segment of abdomen usually with a yellow dot laterally .....*clypeata*
21. Femora black, sometimes tipped with yellow, tibiae yellow basally, tarsi dusky; antennae entirely black; at least lateral lobes of clypeus black, mandibles black; first segment of abdomen entirely black .....*fumipennis*
22. Sixth dorsal abdominal segment almost entirely yellow, bands on remaining segments rather broad.....*vicina*
22. Sixth dorsal abdominal segment with only narrow apical margin yellow, remaining segments excepting second narrowly yellow .....*deserta*
23. Second dorsal abdominal segment without yellow markings; front and clypeus yellow, sparsely punctured; basal abdominal segment with apical half yellow, third segment almost en-

tirely yellow, following segments with narrow yellow fasciae ..... *insolita*

23. Second dorsal segment with a yellow band..... 24

24. Segments of abdomen each with a narrow uniform subapical yellow band, scarcely widened at the sides; scutellum yellow, postscutellum black ..... *compar*

24. All segments of abdomen not having bands of uniform narrow width; if the scutellum is marked with yellow, the postscutellum is also marked with yellow..... 25

25. Size larger, more robust, length 10 mm.; metathorax with a yellow spot laterally; bands of abdomen more strongly widened laterally; yellow mark on clypeus acuminate below, *pleuralis*

25. Size smaller, 7 mm.; metathorax without yellow spots laterally; bands of abdomen not strongly widened laterally..... 26

26. Basal segment of abdomen more or less red, without yellow markings ..... *rufinoda*

26. Basal segment of abdomen black, sometimes with an entire yellow band ..... *finitima*

Cerceris venator Cresson.

1865. *Cerceris venator* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 116.

Numerous specimens taken at Lincoln during the month of August on *Euphorbia marginata.* The ground color of the basal abdominal segments of the male is often ferruginous, and rarely that of the entire abdomen is of the same color. The amount of ferruginous on the female is also quite variable, as I have two specimens on which the only black is that of the triangular enclosure of the metathorax. The darker specimens have also darker wings. The lateral tufts on the apical abdominal segment of the male are characteristic of this species.

There is a strong probability that this female is that described by Guerin as *bicornuta.* Should this prove to be the case the latter name should be adopted, as it has priority over *venator.*

Cerceris flavofasciata, n. sp.

♀. Length about 14 mm. Ground color of insect black, shining. Occiput and vertex rather coarsely punctured, cheeks more sparsely so and the spaces between the punctures with exceedingly fine ones; a place in front of the anterior ocellus and at the sides of the posterior ocelli impunctate, shining, space between ocelli with finer punctures; distance between posterior ocelli about one-half that between them and the inner eye margin;

space between antennae strongly longitudinally carinate, the carina very high; sides of face punctured as cheeks; median lobe of clypeus with a crescent-shaped projection which is quite broad; distance between the points equal to the length of the first three flagellar joints; from the anterior edge of this projection hangs a leathery flap which is interrupted medially; anterior margin of clypeus with two teeth, a carina extending upwards from each tooth; mandibles with a large and a small tooth internally toward apex. Prothorax strongly punctured, rounded and impressed medially, propleura irregularly ridged. Mesonotum and scutellum rather coarsely punctured, the former with two longitudinal impressed lines medially and quite close together; mesopleura and mesosternum coarsely and closely punctured; postscutellum finely and sparsely punctured; metathorax coarsely and rather closely punctured, with a strongly impressed median sulcus which forks above to form the basal enclosure, which, excepting for faint indications of fine punctures, is smooth and shining within; the lateral grooves bounding this enclosure have the appearance of being foveolate; upper portion of metathoracic epimeron striate above, shining below; upper half of metapleura strongly punctured, lower portion smooth with an oblique carina. First abdominal segment globular, with medium-sized rather sparse punctures, remaining segments punctured as first; venter piceous, the segments with a few coarse punctures apically and laterally, basal portions of segments which fit beneath the preceding segment finely punctured. Legs with rather weak spines.

COLORATION.—Lateral portion of face up to antennae, carina between them, anterior portion of clypeal projection, clypeus excepting anterior margin, line on mandibles exteriorly, triangular dot behind eyes, collar above, parts of legs, small dot on each side of first abdominal segment, and apical two-thirds of second, bright yellow. Tibiae and tarsi rufous, with some yellow anteriorly, femora rufous, black behind; scutellum with two reddish spots, tegulae red, antennae red in front. Wings almost as dark as in ***fumipennis***.

♂. Unknown.

Type, a female taken at Lincoln, during July. This is a very distinct species in the shape of the clypeal projection, the one-banded abdomen, and the color of the wings.

Cerceris sexta Say.

1837. *Cerceris sexta* Say, *Boston Journal of Natural History,* i, p. 382.
1859. *Cerceris sexta* Say, Leconte edition, ii, p. 763.
1865. *Cerceris sexta* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 119.

A single male specimen taken at West Point (L. Bruner).

Cerceris fumipennis Say.

1837. *Cerceris fumipennis* Say, *Boston Journal of Natural History*, i, p. 381.

1859. *Cerceris fumipennis* Say, Leconte edition, ii, p. 762.

1865. *Cerceris fumipennis* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 113.

Glen, August 17 (H. S. Smith); Warbonnet canyon, July 20, on *Melilotus* (M. Cary); Lincoln, July (H. S. Smith). This insect is easily recognized by the one-banded abdomen, dark wings, and simple clypeus of the female. The specimens before me vary from 9 to 15 mm. in length. One male has the median lobe of clypeus yellow, the others black.

Cerceris pleuralis, n. sp.

♀. Length about 13 mm. General shape of insect robust, ground color black. Cheeks, occiput, and vertex rather finely punctured, the punctures rather sparse in the vicinity of the ocelli; distance between posterior ocelli about two-thirds that between them and the inner eye margin; carina between antennae quite prominent; face and clypeus rather sparsely punctured; median lobe of clypeus convex, but not strongly so, produced and narrowed strongly anteriorly, and truncate or obtusely bilobed at apex, where it has the appearance of being leathery; anterior portion of clypeus proper with four small lobes or obtuse teeth. Prothorax carinated at the sides, the collar rounded and with rather sparse shallow punctures. Mesonotum with two short impressed lines anteriorly in the middle and close together, rather finely and confluently punctured; scutellum more sparsely punctured; mesopleura coarsely and closely punctured and with a spine before the intermediate coxae. Postscutellum finely and sparsely punctured, metathorax coarsely punctured, with a strong median sulcus; basal enclosure ridged laterally; metathoracic epimeron partly smooth, partly striate. Basal segment of abdomen small, globular, with medium-sized rather close punctures, remaining segments with fine rather sparse punctures, dorsal surface of pygidium dullish; ventral segments with coarse punctures laterally.

Coloration.—The following areas are of a rich yellow: entire face excepting apical portion of clypeus and produced median lobe, intra-antennal carina, scape in front, triangular dot on cheeks back of eyes, slightly interrupted band on collar, tegulae, band on scutellum slightly interrupted, two small dots on metathorax close to postscutellum, short line on disk of first abdominal segment, and a small dot on each side, apical two-thirds of second segment, third segment with a narrow apical band expanded laterally into subquadrate areas, fourth segment with a narrow band gradually widened laterally, same on fifth segment; venter piceous; legs in general yellow, base of anterior and intermediate femora dark, hind legs

suffused with reddish, tarsi dusky; flagellum fulvous beneath. Wings subhyaline, vicinity of marginal cell strongly clouded.

♂. Length 9–10 mm. Does not differ essentially from the female. The clypeus is not quite so prominent, one specimen has a yellow spot back of tubercles, the spots on the scutellum are smaller, the postscutellum is yellow, the spots on the metathorax are farther down and larger, the band on the third segment is produced gradually at the sides instead of suddenly, the sixth segment has a yellow band, the seventh has a minute dot on each side, and ventral segments 1–5 have a small yellow lateral spot. The male lacks the pleural spine.

Type female, Rock county, Nebraska, July 22, 1902, on *Helianthus* sp. (W. D. Pierce); type male, Glen, Sioux county, Nebraska, altitude 4,000 ft., August 19, 1906 (P. R. Jones); male paratype, Lincoln, Nebraska, August.

This species is apparently related to *compacta,* which I have not seen, but differs in size, sculpture of metathorax, and markings. The spine on the pleuron of the female is probably not of very much taxonomic value, as in *compar,* where it is sometimes present and sometimes wanting.

Cerceris deserta Say.

1824. *Cerceris deserta* Say, *Long's Expedition,* ii, Appendix, p. 344.
1852. *Cerceris deserta* Say, Leconte edition, ii, p. 232.
1865. *Cerceris deserta* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 125.

Ranges across the entire state, specimens having been taken at Glen, Sandhills, and West Point, July and August (P. R. Jones, H. S. Smith), also at Lincoln. So far only the male has been captured.

Cerceris imitatoria Schletterer.

1865. *Cerceris imitator* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 125 (not of F. Smith).
1887. *Cerceris imitatoria* Schletterer, *Zoologische Jahrbücher,* ii, p. 494.

Lincoln, August, a single female. Packard unites this species with *deserta,* but I prefer to consider it a distinct species. It differs in the sculpture of the metathorax, having the basal enclosure quite strongly striated, whereas in the above it is almost without striations. The legs also have much more black.

Cerceris vicina Cresson.

1865. *Cerceris vicina* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 120.

Occurs only in the northwestern portion of the state, both sexes having been taken at Glen, at flowers of *Petalostemon* and *Helianthus* spp. (P. R. Jones, H. S. Smith). One male I place here doubtfully, it having no black whatever on the legs and differing from the other males also in having the basal abdominal segment reddish; in these characters it is like the female specimens.

Cerceris occipitomaculata Packard.

1866. *Cerceris occipitomaculata* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 62.

Found throughout the entire state during August and September. The narrow abdominal bands resemble those of the following species, but it is easily separated from that one as indicated in the synopsis. One specimen is labeled *C. pedalis* Cresson, MSS.

Cerceris clypeata Dahlbom.

1845. *Cerceris clypeata* Dahlbom, *Hymenoptera Europaea,* i, pp. 221 and 500.

1865. *Cerceris clypeata* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 114.

Twelve specimens, both sexes, from Glen, Neligh, West Point, Brady Island and Lincoln, June to August, at flowers of *Solidago* sp.

Cerceris compar Cresson

1865. *Cerceris compar* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 126.

Numerous specimens from Sioux county, West Point, and Omaha, during the month of June. Some of the males present a peculiarity in having the under portion of the mesothoracic epimeron armed with a strong spine, just before the intermediate coxae. This spine is tipped with yellow.

Cerceris nebrascensis, n. sp.

♀. Length 10–12 mm. Insect rather slender, ground color black. Cheeks, occiput, and vertex with medium-sized close punctures, sometimes almost arranged in striae; face and clypeus with punctures more sparse and shallow; intra-antennal carina quite elevated; median lobe of clypeus strongly produced and raised anteriorly, quadrate excepting that the anterior margin is somewhat concave, about as broad as length of first two joints of flagellum, anterior margin of clypeus with four indistinct blunt

teeth; mandibles rather slender. Collar of prothorax strongly punctured above, propleura irregularly ridged and roughened. Mesonotum punctured like occiput; impressed double line anteriorly; scutellum and mesopleura punctured like mesonotum. Postscutellum sparsely punctured; triangular basal enclosure quite strongly longitudinally striate; metathorax with deep, coarse punctures and with a strong longitudinal suture medially; metathoracic epimeron finely roughened and with a few faint ridges above and below; also a quite deep pit or fovea at about the middle, and another just above the intermediate coxae; these pits are connected by an impressed line which has fine transverse ridges. Dorsal abdominal segments with deep punctures, rather small and about as far apart as diameter of one puncture; first segment small, subglobose; ventral segments with sparse, deep punctures apically. Tibiae rather strongly spined; basal joint of anterior tarsi with a comb of very short hairs.

COLORATION.—Sides of face extending somewhat above level of antennae, large spot on produced portion of clypeus, small spot on lateral lobes, yellow; antennae almost entirely rufous, dusky above toward apex; intra-antennal carina entirely black; clypeus black anteriorly; mandibles yellow at base, gradually changing to rufous and piceous at apex; thorax without yellow markings; legs entirely rufous; tegulae rufous; first abdominal segment with a rufous band, segments 2–5 with apical yellow bands broadened laterally; venter black; wings smoky, slightly darker apically.

♂. Unknown.

Type, Glen, Sioux county, Nebraska, altitude 4,000 ft., August 15, 1906 (P. R. Jones); one paratype, same label as above.

The paratype differs from the type in being slightly smaller, in having the postscutellum yellow, the first abdominal segment entirely reddish with a subinterrupted yellow band, and the second segment reddish basally; these two segments are also reddish ventrally. Allied to *nigrescens,* from which it is very distinct.

Cerceris fulvipediculata Schletterer.

1865. *Cerceris fulvipes* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 126 (not of Eversmann).

1887. *Cerceris fulvipediculata* Schletterer, *Zoologische Jahrbücher,* ii, p. 492.

Glen, August 18, 1906 (P. R. Jones); Lincoln, August and September.

Cerceris insolita Cresson.

1865. *Cerceris insolita* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 129.

Glen, August 12, 1906 (H. S. Smith); West Point, June 28, 1906 (P. R. Jones); Carns, July 24 (W. D. Pierce). So far as is known to the writer the female of this species has never been described, and differs from the male as follows: the legs are almost entirely reddish, the hind femora having a darker spot behind and the posterior tarsi dusky; the yellow markings are all heavier; the median lobe of clypeus is strongly bulging outward but not raised anteriorly; the sides of the face, connected below the antennae by a narrow line which is produced medially toward antennae, a spot on the disk of the clypeus, a spot on the lateral lobes, and the base of the mandibles, yellow. This species is readily recognized by the immaculate second dorsal segment of the abdomen.

Cerceris rufinoda Cresson.

1865. *Cerceris rufinoda* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 121.

Inhabits the entire state, the collection containing specimens from Glen, Crawford, Carns, Gering, and Lincoln, July and August, on flowers of *Cleome serrulata, Mentzelia* sp., *Solidago* sp., *Helianthus* sp., and *Euphorbia marginata.* This species is quite variable in size and markings; two specimens have the red of the first abdominal segment obscure, almost wanting.

Cerceris rufinoda crucis Viereck and Cockerell.

1904. *Cerceris rufinoda* var. *crucis* Viereck and Cockerell, *Journal of the New York Entomological Society,* xii, p. 139.

Glen, August 17, on *Solidago* sp. (H. S. Smith); Neligh, August 8, on *Verbena* sp. (M. Cary). Quite variable in facial markings, one specimen having the entire face, including the clypeus, white.

Cerceris finitima Cresson.

1865. *Cerceris finitima* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 122.

Entire state, June to August, at *Cleome serrulata, Carduus* sp., and *Euphorbia marginata.*

Genus **Eucerceris** Cresson

SYNOPSIS OF THE SPECIES

Ground color of insect black, markings fulvous, yellow, or both.... 1
Ground color of insect yellow, markings fulvous; female with lateral lobes of clypeus produced into a conical projection, middle lobe flattened; ventral segments 3 and 4 of male with a fringe of long, erect bristles on apical middle, and a row of short, erect, evenly cut, appressed bristles on segment five.....*canaliculatus*

1. Wings clear hyaline excepting the costal and apical margins (see also *superbus*) 4
1. Wings fuliginous, darker on costal margin..... 2
2. Wings yellowish medially, darker in vicinity of marginal cell; front, clypeus, and mandibles, except apex, yellow; abdomen usually with broad yellow bands on segments 1–5 (sometimes partly lacking); collar of prothorax yellow above; metanotum and scutellum entirely black; female unknown .....*superbus*
2. Wings entirely dark, subviolaceous; apical segments of abdomen entirely black; head very wide; clypeus of female with a strong projection on the median lobe..... 3
3. Abdomen without yellow markings; second and third, sometimes first, dorsal segments rufous .....*bicolor*
3. Abdomen having more or less yellow on basal abdominal segments; ground color of basal segments black..*zonatus laticeps*
4. Cheeks and metathorax more or less red; female with a conical protuberance on the median lobe of clypeus; metathorax without yellow markings .....*rubripes*
4. Cheeks black with a yellow dot; metathorax black with a large ovate spot on each side and an interrupted "V" above; female having median lobe of clypeus flat....*fulvipes*

Eucerceris canaliculatus (Say).

1823. *Philanthus canaliculatus* Say, *Western Quarterly Reporter,* ii, p. 80.
1859. *Philanthus canaliculatus* Say, Leconte edition, i, p. 111.
1865. *Eucerceris canaliculatus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 112.

This species is represented by a single female specimen taken at Lincoln. It is easily recognized by the yellow ground color and the two protuberances on the clypeus of the female.

Eucerceris superbus Cresson.

1865. *Eucerceris superbus* Cresson, *Proceedings of the Entomological Society of Philadelphia,* v, p. 108.

Ranges across the entire state, specimens having been taken at Glen, Niobrara, and Lincoln. Flies during the month of August. Some specimens have the three apical segments of the abdomen entirely black, and most of them do not have the yellow on the pleura which is found in the typical specimens.

Eucerceris bicolor Cresson.

1881. *Eucerceris bicolor* Cresson, *Transactions of the American Entomological Society*, ix, p. xxxviii.

Western portion of state—Glen and Benkelman, during July and August (L. Bruner, H. S. Smith). Easily recognized by the red and black abdomen. One specimen has the basal segment black.

Eucerceris zonatus laticeps Cresson.

1865. *Eucerceris laticeps* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 107.

Inhabits the entire state. Glen, August 20, 1906 (P. R. Jones, H. S. Smith); Lincoln, August, on *Euphorbia marginata* (W. D. Pierce). In structure very similar to the preceding species.

Eucerceris rubripes Cresson.

1879. *Eucerceris rubripes* Cresson, *Transactions of the American Entomological Society*, vii, p. xxiii.

Abundant in northwest Nebraska. Warbonnet canyon, Glen, Gordon, West Point, and Lincoln, June to August, taken at flowers of *Petalostemon* and *Solidago* spp. Many of the specimens lack the red on the sides of the metathorax.

Eucerceris fulvipes Cresson.

1865. *Eucerceris fulvipes* Cresson, *Proceedings of the Entomological Society of Philadelphia*, v, p. 111.

Up to date this species has been taken only at Glen and Warbonnet canyon in Sioux county, during August, where it is abundant at flowers of *Solidago* and occasionally also on *Melilotus*. Superficially the male is very much like that of the preceding, but differs in having yellow spots on the cheeks and metathorax instead of rufous; also it has two oblique yellow marks on the metanotum. The females are quite different, both in structure of clypeus and in coloration, the females of the former usually having a red head, and a conical projection on the clypeus.

Family **LARRIDAE**

KEY TO THE SUBFAMILIES

Hind ocelli normal, distinct.
  Second cubital cell petiolate or triangular, or more rarely entirely wanting; pronotum most frequently short, transverse.....PISONINAE
  Second cubital cell never petiolate, receiving both recurrent nervures, or the first and second cubital cells each receive a recurrent nervure; pronotum long .....LYRODINAE
Hind ocelli more or less distorted, obsolete or subobsolete; mandibles most frequently emarginate on under side .....LARRINAE

Subfamily **PISONINAE**

Genus **Plenoculus** Fox

SYNOPSIS OF THE SPECIES

Mandibles reddish medially; hind tibiae and tarsi not at all yellowish .....*propinquus*
Mandibles, and hind tibiae and tarsi more or less, yellowish.....*davisii*

Plenoculus propinquus Fox.

1893. *Plenoculus propinquus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 536.

A single female taken at Glen, Sioux county, August 20, 1906 (H. S. Smith). This and the following are small black wasps, from four to six mm. in length.

Plenoculus davisii Fox.

1893. *Plenoculus davisii* Fox, *Psyche,* vi, p. 544.
1893. *Plenoculus davisii* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 536.

Two females, West Point, June (L. Bruner).

Subfamily **LYRODINAE**

Genus **Lyroda** Say

SYNOPSIS OF THE SPECIES

Size large, 14–15 mm.; wings dark smoky; form stout, opaque black, abdomen without silvery pile; anterior margin of clypeus of female not at all dentate laterally.....*triloba*
Size smaller, 7–13 mm.; wings hyaline, tips dusky; more slender than the above, and with silvery pile on the abdomen; anterior margin of clypeus of female armed with three distinct teeth laterally..*subita*

Lyroda triloba Say.

1837. *Lyrops* (*Lyroda*) *triloba* Say, *Boston Journal of Natural History,* i, p. 372.
1859. *Lyrops* (*Lyroda*) *triloba* Say, Leconte edition, ii, p. 755.
1893. *Lyroda triloba* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 533.

A single female specimen of this fine species was taken at Lincoln during August, on *Euphorbia marginata* (W. D. Pierce).

Lyroda subita Say.

1837. *Lyrops* (*Lyroda*) *subita* Say, *Boston Journal of Natural History,* i, p. 372.
1859. *Lyrops* (*Lyroda*) *subita* Say, Leconte edition, ii, p. 755.
1893. *Lyroda subita* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 533.

Two females, Ashland and West Point, June (L. Bruner). These species are both black, but differ greatly in size and color of pilosity.

Subfamily **LARRINAE**

KEY TO THE GENERA

Face along the inner eye margin without a swelling or fold.

Comb of anterior tarsi of female composed of very long flexible spines or bristles; pygidial area naked; hind ocelli oval; fore femora of the male always emarginate beneath near the base..... *Tachysphex*

Comb of anterior tarsi of female composed of stiff rather short thorns; pygidial area entirely covered with pubescence; hind ocelli linear, hooked at upper end; fore femora of male either emarginate or simple beneath near the base..... *Tachytes*

Face with a more or less developed longitudinal swelling or fold along the inner eye margin.

Pronotum not drawn under the mesonotum; metanotum shorter than the mesonotum; anterior femora of male emarginate near the base; pygidial area bare toward base, but with short stiff hairs at apex, *Ancistromma*

Pronotum drawn under the mesonotum, especially at the sides; metanotum longer than the mesonotum; anterior femora of the male not emarginate near the base; pygidial area clothed with a silvery pubescence ..... *Notogonia*

Genus **Notogonia** Costa

Notogonia argentata (Beauvais).

1811. *Larra argentata* Beauvais, *Insectes d'Afrique et d'Amerique,* p. 119.

1893. *Notogonia argentata* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 485.

Inhabits only the eastern portion of the state, specimens of both sexes having been taken at Lincoln, Weeping Water, Ashland, and West Point, from June to October.

Genus **Ancistromma** Fox

SYNOPSIS OF THE SPECIES

Space between eyes at top less than or equal to antennal joints two and three united 1
Space between eyes at top decidedly greater than antennal joints two and three united 3
1. Metanotum striated, these striations running longitudinally at base, until they reach a little beyond the middle, where they curve and extend to the sides.....*distinctum*
1. Metanotum not sculptured as above; if striated, the striae do not curve outward 2
2. Metanotum rugose or granulate, not striated; wings rather cloudy; size 10–15 mm.....*aurantium*
2. Metanotum small, taking the shape of a shield, this face being longitudinally striated; length 6–7 mm.....*sericifrons*
3. Wings clear hyaline 4
3. Wings dark fuscous 5
4. Basal segments of abdomen red.....*confertum*
4. Abdomen entirely black .....*bruneri*
5. Abdomen entirely black; metanotum finely, transversely striated; scutellum shining .....*vegetum*
5. Abdomen more or less red; metanotum coarsely granulate; scutellum and dorsulum opaque.....*divisum*

Ancistromma distinctum (F. Smith).

1856. *Larrada distincta* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 292.
1893. *Ancistromma distincta* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 488.

The commonest Larrid found within the state. A large series of specimens from Lincoln, West Point, and Glen, the range therefore extending across the entire state. Flies during August and September. The variety having the black abdomen is also found, but very rarely.

Ancistromma aurantium (Fox).

1891. *Larra aurantia* Fox, *Entomol[illegible]ews*, ii, p. 194.

1893. *Ancistromma aurantia* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 490.

Both sexes, West Point and Lincoln.

sericifrons H. S. Smith.

[illegible]*istromma sericifrons* H. S. Smith, *Entomological News*, xvii, p. 247.

Six males taken at Glen, Sioux county, during August. Most of the specimens do not have the apical abdominal segments black, as is the case with the type.

Ancistromma confertum Fox.

1893. *Ancistromma conferta* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 494.

Numerous specimens from West Point, Pine Ridge, and Glen, during June, July, and August.

Ancistromma bruneri H. S. Smith.

1906. *Ancistromma bruneri* H. S. Smith, *Entomological News*, xvii, p. 248.

Eight specimens from West Point (type locality) and Glen, June to August. This may turn out to be only a black abdomened variety of *conferta*, which, excluding its color, it very much resembles.

Ancistromma vegetum Fox.

1893. *Ancistromma vegeta* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 497.

This pretty black species is found only in the northwestern portion of the state. Both sexes taken at Glen during the month of August.

Ancistromma divisum (Patton).

1879. *Larra divisa* Patton, *Bulletin of the U. S. Geological Survey*, v, p. 368.

1893. *Ancistromma divisa* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 495.

Also limited to the northwest; Glen, both sexes (P. R. Jones, H. S. Smith).

Genus **Tachytes** Panzer

SYNOPSIS OF THE SPECIES

Males with fore femora emarginate beneath at base and fore coxae with an elongated process; thorax of females not densely pubescent 1
Males with fore femora entire; fore coxae simple; thorax of female generally densely pubescent 2
1. Size larger, 11–21 mm.; wings yellowish; tibiae, tarsi, and part of femora reddish; pubescence golden.....*distinctus*
1. Size smaller, 10–14 mm.; wings subhyaline; legs black; pubescence silvery .....*sericatus*
2. Abdomen mostly reddish; apical segment of male antennae abnormal (there is occasionally a variety male with a black abdomen, but this is distinguishable by the abnormal antennae) ..... *fulviventris*
2. Abdomen black, usually with silvery bands..... 3
3. Legs excepting apical joint of tarsi, black; hind tarsi of male rather strongly spinose .....*pepticus*
3. Apex of femora, tibiae, and tarsi ferruginous..... 4
4. Males 5
4. Females 6
5. Hind tarsi quite strongly spinose.....*harpax*
5. Hind tarsi not spinose.....*mandibularis*
6. Metanotum without a strong sulcus medially; pygidium with silvery pubescence; size smaller.....*harpax*
6. Metanotum with a strong sulcus medially; pygidium with coppery pubescence; size larger..... 7
7. Anterior margin of clypeus medially produced into a quadrate tooth, with several small teeth on each side.....*mandibularis*
7. Anterior margin of clypeus not produced into a quadrate tooth, at most thickened medially.....*crassus*

Tachytes distinctus F. Smith.

1856. *Tachytes distinctus* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 307.
1892. *Tachytes distinctus* Fox, *Transactions of the American Entomological Society,* xix, p. 246.
1892. *Tachytes elongatus* Fox, *Ibid.,* p. 246.

Six specimens, both sexes, from Lincoln, during August and September, on *Euphorbia.* The ferruginous on the femora of the female is much greater in extent than on that of the male.

Tachytes sericatus Cresson.

1872. *Tachytes sericatus* Cresson, *Transactions of the American Entomological Society,* iv, p. 216.

1892. *Tachytes sericatus* Fox, *Ibid.*, xix, p. 247.

One male, West Point, one female, Ashland, June (L. Bruner).

Tachytes fulviventris Cresson.

1865. *Tachytes fulviventris* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 466.

1892. *Tachytes fulviventris* Fox, *Transactions of the American Entomological Society,* xix, p. 243.

This extremely variable species is numerous in the western portion of the state, and has been taken as far east as Ashland. Both the typical form and the black abdomened male are found, the latter however is rare. Flies during July and August at flowers of *Solidago* and *Sagittaria.*

Tachytes pepticus (Say).

1837. *Lyrops peptica* Say, *Boston Journal of Natural History,* i, p. 371.

1859. *Lyrops peptica* Say, Leconte edition, ii, p. 754.

1892. *Tachytes pepticus* Fox, *Transactions of the American Entomological Society,* xix, p. 242.

The most common species of the genus, but rarely taken in the eastern portion of the state. Carns, Glen, Dundy county, Gordon, Warbonnet canyon, Crawford, West Point, Malcolm, Lincoln. Flies from June to August, on flowers of *Euphorbia, Cleome, Petalostemon, Ratibida, Verbena, Monarda,* and *Solidago* spp.

Tachytes harpax Patton.

1880. *Tachytes harpax* Patton, *Proceedings of the Boston Society of Natural History,* xx, p. 394.

1893. *Tachytes harpax* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 499.

Rarely found as far west as Nebraska. One male taken at West Point, July 8 (L. Bruner).

Tachytes mandibularis Patton.

1880. *Tachytes mandibularis* Patton, *Proceedings of the Boston Society of Natural History,* xx, p. 393.

1893. *Tachytes mandibularis* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 499.

Glen, Malcolm, Ashland, Nebraska City, Weeping Water, Lincoln, thus ranging across the entire state. Flies during July and August.

Tachytes crassus Patton.

1880. *Tachytes crassus* Patton, *Proceedings of the Boston Society of Natural History,* xx, p. 393.

1892. *Tachytes crassus* Fox, *Transactions of the American Entomological Society,* xix, p. 241.

One female, Lincoln, July. It is possible that I have confused the males of this and *mandibularis,* but I can not refer any of the male specimens which I have to this species by means of the description, although the male *crassus* must surely occur within the state. Mr. Chas. Robertson considers this to be synonymous with *distinctus.*

Tachytes rufofasciatus Cresson.

1872. *Tachytes rufo-fasciata* Cresson, *Transactions of the American Entomological Society,* iv, p. 217.

1892. *Tachytes rufofasciatus* Fox, *Ibid.,* xix, p. 247.

This species is reported from Nebraska by Mr. Fox, but I have not been able to refer any of the specimens in the collection to that form.

Genus **Tachysphex** Kohl

SYNOPSIS OF THE SPECIES

Males 1
Females 7
1. Space between eyes at top about equal to length of antennal joints 2 and 3 united; size small, 5.5–7 mm..... *minimus*
1. Space between eyes at top greater than antennal joints 2 and 3 united 2
2. Basal segments at least, or entire abdomen, black..... 3
2. Basal segments at least of abdomen reddish..... 6
3. Apical segments of abdomen bright red..... *terminatus*
3. Apical segments of abdomen not red..... 4
4. Metanotum smooth or indistinctly sculptured..... *punctifrons*
4. Metanotum coarsely sculptured 5
5. Space between eyes at top decidedly less than the length of antennal joints 2–4 united, but little greater than joints 2 and 3 united ..... *mundus*
5. Space between eyes at top equal to the length of antennal joints 2–4 united ..... *acutus*
6. Abdomen entirely red ..... *tarsatus*
6. Apical segments of abdomen black..... *consimilis*
7. Space between eyes at top less than the length of antennal joints 2 and 3 united ..... *belfragei*

1893. *Tachysphex acutus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 521.

A single specimen from Lincoln is labeled with the above name, but the abdomen is missing, so that I am unable to verify the determination. It should not be considered as absolutely authentic, as it has never been recorded from the west to my knowledge.

Tachysphex minimus (Fox).

1892. *Tachytes minimus* Fox, *Transactions of the American Entomological Society,* xix, p. 248.

1893. *Tachysphex minimus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 532.

Thus far taken only at West Point, during June (L. Bruner). Some of the specimens have the abdomen entirely black, and others have the basal segment red as in *mundus.*

Tachysphex tarsatus (Say).

1823. *Larra tarsata* Say, *Western Quarterly Reporter,* ii, p. 78.

1859. *Larra tarsata* Say, Leconte edition, i, p. 166.

1893. *Tachysphex tarsatus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 512.

West Point, Glen, and Warbonnet canyon, June to August.

Tachysphex semirufus (Cresson).

1865. *Larrada semirufa* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 464.

1893. *Tachysphex semirufus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 515.

Northwest corner of the state only. Bad Lands, at mouth of Monroe canyon in Sioux county, May, on *Astragalus* sp. (L. Bruner).

Tachysphex puncticeps, new name.

1906. *Tachysphex punctulatus* H. S. Smith, *Entomological News,* xvii, p. 246 (not of Kohl).

The type specimen, taken in Sioux county, in May.

Tachysphex belfragei (Cresson).

1872. *Larrada Belfragei* Cresson, *Transactions of the American Entomological Society,* iv, p. 215.

1893. *Tachysphex Belfragei* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 509.

Two females, Lincoln, during July and August, on *Euphorbia.*

7. Space between eyes at top about equal to length of antennal joints 2 and 3 united 8
7. Space between eyes at top greater than the length of antennal joints 2 and 3 united 12
8. Abdomen entirely black, segments broadly margined with testaceous .....*mundus*
8. Abdomen partly or entirely red..... 9
9. Abdomen entirely red 10
9. Abdomen black apically 11
10. Length 7 mm.; sides of face and front with medium-sized shallow punctures, widely separated, and the spaces between them with exceedingly fine ones; metanotum finely granulated .....*puncticeps*
10. Length 10–11 mm.; front finely granulated.....*tarsatus*
11. Pygidium two and one-half times as long as wide at base, sparsely punctured; metanotum shining .....*semirufus*
11. Pygidium twice as long as wide at base, much more closely punctured; metanotum opaque .....*mundus* var.
12. Space between eyes at top equal to or greater than the length of antennal joints 3 and 4 united; abdomen black, two apical segments red .....*terminatus*
12. Space between eyes at top less than length of antennal joints 3 and 4 united 13
13. Greater part of abdomen red; abdomen depressed throughout, *consimilis*
13. Abdomen entirely black 14
14. Metanotum reticulated; size 9 mm. .....*acutus*
14. Metanotum finely granulated; size 12–13 mm.....*punctifrons*

Tachysphex punctifrons (Fox).

1891. *Larra punctifrons* Fox, *Entomological News*, ii, p. 194.
1893. *Tachysphex punctifrons* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 531.

West Point, and Jim creek in Sioux county, June and July, both sexes.

Tachysphex mundus Fox.

1893. *Tachysphex mundus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 531.

West Point and Carns, June and July on *Cassia* and *Euphorbia*. Two of the specimens from the latter locality have the basal segments of the abdomen reddish.

Tachysphex acutus (Patton).

1880. *Larra acuta* Patton, *Proceedings of the Boston Society of Natural History*, xx, p. 390.

1893. *Tachysphex acutus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 521.

A single specimen from Lincoln is labeled with the above name, but the abdomen is missing, so that I am unable to verify the determination. It should not be considered as absolutely authentic, as it has never been recorded from the west to my knowledge.

Tachysphex minimus (Fox).

1892. *Tachytes minimus* Fox, *Transactions of the American Entomological Society,* xix, p. 248.

1893. *Tachysphex minimus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 532.

Thus far taken only at West Point, during June (L. Bruner). Some of the specimens have the abdomen entirely black, and others have the basal segment red as in *mundus.*

Tachysphex tarsatus (Say).

1823. *Larra tarsata* Say, *Western Quarterly Reporter,* ii, p. 78.

1859. *Larra tarsata* Say, Leconte edition, i, p. 166.

1893. *Tachysphex tarsatus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 512.

West Point, Glen, and Warbonnet canyon, June to August.

Tachysphex semirufus (Cresson).

1865. *Larrada semirufa* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 464.

1893. *Tachysphex semirufus* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 515.

Northwest corner of the state only. Bad Lands, at mouth of Monroe canyon in Sioux county, May, on *Astragalus* sp. (L. Bruner).

Tachysphex puncticeps, new name.

1906. *Tachysphex punctulatus* H. S. Smith, *Entomological News,* xvii, p. 246 (not of Kohl).

The type specimen, taken in Sioux county, in May.

Tachysphex belfragei (Cresson).

1872. *Larrada Belfragei* Cresson, *Transactions of the American Entomological Society,* iv, p. 215.

1893. *Tachysphex Belfragei* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 509.

Two females, Lincoln, during July and August, on *Euphorbia.*

T[illegible] o specimens differ somewhat [illegible] of the [illegible]tum, but otherwise they are iden[illegible]cal.

Tachysphex terminatus (F. Smith).

1856. *Larrada terminata* F. Smith, *Catalogue of Hymenoptera in the British Museum*, iv, p. [illegible]

1893. *Tachysphex terminatus* F[illegible] *P*[illegible] *dings of the Academy of Natural Sciences of* [illegible] p. 520.

Both sexes from West Point, [illegible]ort, Indian Creek, and Glen during the month of August.

Tachysphex consimilis Fox.

1893. *Tachysphex consimilis* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia*, p. 526.

A single male from Glen seems to belong here. I have also a related species which I am unable to identify on account of the fact that the abdomen is mutilated.

Family **BEMBICIDAE**

KEY TO THE GENERA

Anterior ocellus round or reniform; maxillary palpi six-jointed, labial palpi four-jointed ..... *Monedula*

Anterior ocellus linear, transversely arcuate.

Metathorax flat or convex posteriorly, not compressed laterally; last ventral segment of male ending in a single spine.

Mandibles not dentate; maxillary palpi three-jointed, labial palpi one-jointed ..... *Microbembex*

Mandibles dentate; maxillary palpi four-jointed, labial palpi two-jointed ..... *Bembex*

Metathorax excavated posteriorly, compressed laterally; last ventral segment of male ending in three spines; mandibles dentate; maxillary palpi six-jointed, labial palpi four-jointed..... *Bembidula*

Genus **Monedula** Latreille

SYNOPSIS OF THE SPECIES

Females 1

Males 5

1. Mesonotum with a U-shaped yellow mark; eyes convergent above; size 16–22 mm. ..... *speciosa*

1. Mesonotum at most with two longitudinal lines..... 2

2. Pulvilli large and distinct..... 3

2. Pulvilli small and indistinct; meso- and metanotum spotted; all dorsal abdominal segments with continuous fasciae; clypeus entirely yellow ..... *pulchella*

3. Head small, narrower than the thorax; head and thorax hairy; mesonotum entirely black ..... *emarginata*

3. Head as usual, as wide as thorax..... 4

4. Size small, 9 mm.; mesonotum in greater part yellow; front and vertex with short, sparse hair; abdominal fasciae, excepting the first, continuous anteriorly..... *exigua*

4. Size larger, 12–15 mm.; mesonotum in greater part black; front and vertex clothed with long dense pubescence; abdominal fasciae deeply emarginate anteriorly..... *pectifrons*

5. Median femora smooth beneath; second ventral segment flat, not tuberculate; size 12–13 mm..... *pectifrons*

5. Median femora serrate or carinate beneath, or broadly emarginate. 6

6. Meso- and metapleura almost entirely yellow, truncation of metathorax with a yellow semicircular mark..... *speciosa*

6. Meso- and metapleura with little if any yellow; truncation of metathorax without yellow markings..... 7

7. Second ventral segment flat, not tuberculate; pleura with short pubescence; a yellow crescent-shaped mark before anterior ocellus ..... *plana*

7. Second ventral segment bituberculate; pleura with long pubescence; front without a yellow mark before ocelli..... *emarginata*

Monedula speciosa Cresson.

1865. *Monedula speciosa* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 470.

1895. *Monedula speciosa* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 366.

Four females, Sidney, August, 1893 (L. Bruner); five males, McCook, July, 1906 (M. H. Swenk). I have two male specimens which have the second ventral segment bituberculate, and metanotum without yellow marks.

Monedula emarginata Cresson.

1865. *Monedula emarginata* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 468.

1895. *Monedula emarginata* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 368.

Numerous specimens, from the northwestern corner of the state only. This species is easily recognized by the small head, which is much narrower than the thorax.

Monedula pulchella Cresson.

1865. *Monedula pulchella* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 471.

1895. *Monedula pulchella* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 366.

A single female specimen taken at McCook, July (M. H. Swenk).

Monedula plana Fox.

1895. *Monedula plana* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 367.

Represented in the University collection by a single male, taken at Glen, August 15 (P. R. Jones).

Monedula exigua Fox.

1895. *Monedula exigua* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 370.

One male, seven females, all from Glen, during July and August.

Monedula pictifrons F. Smith.

1856. *Monedula pictifrons* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 355.

1895. *Monedula pictifrons* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 368.

One female of this pretty little species taken at Weeping Water, July 20 (H. S. Smith).

Genus **Microbembex** Patton

Microbembex monodonta (Say).

1824. *Bembex monodonta* Say, *Long's Expedition,* ii, Appendix, p. 355.

1859. *Bembex monodonta* Say, Leconte edition, i, p. 226.

1895. *Microbembex monodonta* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 363.

Numerous specimens of this variable species from the eastern third of the state, June, July, and August.

Genus **Bembex** Fabricius

SYNOPSIS OF THE SPECIES

Females	1
Males	5

1. Sixth dorsal segment coarsely wrinkled longitudinally; thorax entirely black ..... *belfragei*
1. Sixth dorsal segment more or less punctured..... 2
2. Wings distinctly banded medially with brown, apex of wings clear hyaline, abdomen yellow above with black markings, *nubilipennis*
2. Wings uniformly hyaline throughout..... 3
3. Metanotum entirely black (rarely with a single semicircular yellow line); meso- and metapleura usually without spots... *spinolae*
3. Metanotum with two semicircular yellow lines; metapleura usually spotted with yellow 4
4. First abdominal segment usually with a continuous band; disk of mesothorax without yellow lines; fore coxae and greater part of sides of thorax black..... *troglodytes*
4. First abdominal segment with band usually interrupted; disk of mesothorax with two faint yellow lines; fore coxae and greater part of sides of thorax yellow..... *sayi*
5. Last dorsal segment of abdomen longitudinally ridged; thorax entirely black; clypeus usually entirely black..... *belfragei*
5. Last dorsal segment more or less punctured..... 6
6. Antennal joints not dentate or spinose; intermediate femora unarmed beneath; abdomen very hairy..... *troglodytes*
6. Antennal joints more or less dentate or spinose..... 7
7. Mesonotum spotted medially; second and seventh ventral segments with a large prominence; first joint of medial tarsi normal, *sayi*
7. Mesonotum not spotted medially..... 8
8. Femora entirely yellow (rarely black at extreme base); markings bright yellow; thorax not densely pubescent, *nubilipennis*
8. Femora about equally black and yellow; markings of abdomen more greenish; thorax rather densely covered with cinereous pubescence ..... *spinolae*

Bembex belfragei Cresson.

1873. *Bembex Belfragei* Cresson, *Transactions of the American Entomological Society,* iv, p. 220.
1893. *Bembex Cressonii* Handlirsch, *Sitzungsberichte der Akademie der Wissenschaften, Wien,* cii, p. 792.
1895. *Bembex Belfragei* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 357.

Two females, McCook, July, 1905 (M. H. Swenk); one male, West Point, June, 1887 (L. Bruner). These specimens lack the basal transverse impression of the labrum which Fox mentions in his synopsis, but the peculiar sculpture of the last dorsal seg-

ment, together with the fact that the specimens coincide with the original description, leads me to believe that they are correctly placed here.

Bembex spinolae Lepeletier.

1845. *Bembex Spinolae* Lepeletier, *Histoire Naturelle des Insectes, Hymenoptera,* iii, p. 277.
1845. *Bembex fasciata* Dahlbom, *Hymenoptera Europaea,* i, p. 487.
1895. *Bembex Spinolae* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 357.

Inhabits the entire state. Numerous specimens from Lincoln, Neligh, McCook, Niobrara, Warbonnet canyon, and Glen taken from June to September. The specimens taken in the northwest portion have a tendency toward a heavier marking of the pleura with yellow.

Bembex sayi Cresson.

1865. *Bembex Sayi* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 467.
1895. *Bembex Sayi* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 359.

Three typical specimens all taken at Lincoln during the month of July.

Bembex troglodytes Handlirsch.

1893. *Bembex troglodytes* Handlirsch, *Sitzungsberichte der Akademie der Wissenschaften, Wien,* cii, p. 829.
1895. *Bembex troglodytes* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 360.

Seven females, Ashland and Neligh, July (M. Cary).

Bembex nubilipennis Cresson.

1872. *Bembex nubilipennis* Cresson, *Transactions of the American Entomological Society,* iv, p. 218.
1895. *Bembex nubilipennis* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 361.

So far taken only at Lincoln and Holdrege, from July to September. One specimen is a great deal smaller than the others, and has less yellow on the abdomen and thorax.

Genus **Bembidula** Burmeister

Bembidula ventralis (Say).

1824. *Monedula ventralis* Say, *Long's Expedition,* ii, Appendix, p. 336.
1859. *Monedula ventralis* Say, Leconte edition, i, p. 227.
1895. *Bembidula ventralis* Fox, *Proceedings of the Academy of Natural Sciences of Philadelphia,* p. 353.

Taken only in the northern and northwestern portions of the state. I have before me specimens from Carns, Glen, and Warbonnet canyon, taken during July and August on *Melilotus, Solidago,* and *Helianthus* spp.

Family **PEMPHREDONIDAE**

KEY TO THE SUBFAMILIES

Front wings with three cubital cells; antennae inserted far above the clypeus on or near the middle of the face.....PSENINAE
Front wings with two cubital cells; antennae inserted close to the base of the clypeus .....PEMPHREDONINAE

Subfamily **PSENINAE**

KEY TO THE GENERA

Cubital vein in hind wings originating beyond the transverse median nervure, the latter short and straight, perpendicular; submedian cell in front wings a little shorter than the median, the transverse median vein being not quite interstitial with the basal vein; second cubital cell usually much narrower above.....*Neofoxia*
Cubital vein in hind wings originating before the transverse median vein, the latter long and oblique or slightly bent, but not perpendicular.
Second and third cubital cells each receiving a recurrent nervure, or the first recurrent nervure is interstitial with the first transverse cubital vein; head with a spine between the antennae; clypeus anteriorly rimmed, and with a median sinus.....*Psen*
Second cubital cell receiving both recurrent nervures, rarely with the first recurrent nervure interstitial with the first transverse cubital vein, or the second recurrent interstitial with the second transverse cubital vein; inner spur of hind tibiae dilated; metathorax with a median sulcus, the area at base striate or alveolate; petiole of abdomen long, usually furrowed laterally; clypeus convex or subconvex, separated, anteriorly more or less rounded and with a slight vein, but without a median sinus; labrum hidden.....*Mimesa*

Genus **Neofoxia** Viereck

Neofoxia suffusa (Fox).

1898. *Psen suffusus,* Fox, *Transactions of the American Entomological Society,* xxv, p. 18.

1901. *Neofoxia suffusus* Viereck, *Ibid.,* xxvii, p. 342.

Represented by a single female from Lincoln, taken during August on *Physalis* (M. A. Carriker).

Genus **Psen** Latreille

Psen monticolus (Packard).

1867. *Mimesa monticola* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 407.

1898. *Psen monticola* Fox, *Transactions of the American Entomological Society,* xxv, p. 11.

A single female specimen from Glen. Easily recognized by means of the wing venation and general habitus.

Genus **Mimesa** Schuckard

SYNOPSIS OF THE SPECIES

Females 1
Males (copied from Fox)..... 7
1. Apex of abdomen cone-shaped, flattened pygidial area wanting.... 2
1. Apex of abdomen with a distinct flattened pygidial area..... 3
2. Abdomen with segments 1 to 3 red; joints 2 to 6 of the flagellum strongly produced beneath; petiole almost as long as hind femur, trochanter and coxa combined.....*conica*
2. Abdomen with segments black, sometimes margined with testaceous; joints of flagellum not strongly produced beneath; petiole not longer than hind femur.....*granulosa*
3. Insect entirely black; mandibles strongly bidentate apically (a single tooth practically equaling the tip); pygidium with large strong punctures .....*mandibularis*
3. Insect with at least one segment of the abdomen reddish; antennae and tarsi more or less testaceous; pygidium with small punctures 4
4. Petiole fully as long as, or longer than, the hind femur; abdomen with segments 1 to 3 and sometimes 4 reddish..*cressonii*
4. Petiole equal to or shorter than, the hind femur..... 5
5. Size larger, 9.5 mm.; sculpture of metathorax coarsely reticulate; mandibles bluntly rounded; abdominal segments 1–3 and base of 4 reddish; pubescence of face yellowish white, *nebrascencis*

5. Size smaller, 6–7 mm.; sculpture of metathorax much finer, striato-reticulate 6
   6. Mandibles with a quite strong tooth just back of apex; first segment of abdomen black except apex; second segment and sometimes base of third reddish; abdomen more ovate than the following, segments scarcely constricted; pygidial area narrower ..... *unicincta*
   6. Mandibles without a tooth or with only a very faint indication of one; segments 2 and 3 of abdomen reddish; abdomen with sides more nearly parallel, slightly constricted between segments ..... *proxima*
7. Petiole of abdomen distinctly longer than hind femur; flagellum strongly clavate, the basal joint rather distinctly dentate beneath ..... *cressonii*
7. Petiole of abdomen not longer than hind femur..... 8
   8. Abdomen elongate, clavate, *Trypoxylon*-like; enclosure of metanotum closely granulate ..... *granulosa*
   8. Abdomen otherwise shaped 9
9. Legs more or less testaceous..... *unicincta*
9. Legs entirely black ..... *proxima*

Mimesa granulosa (Fox).

1898. *Psen granulosus* Fox, *Transactions of the American Entomological Society,* xxv, p. 15.

The female of this species, which I believe is heretofore unknown, does not differ essentially from the male, excepting in the sexual characters. This species and the following one are peculiar in that they have no flattened pygidial area, the apical segment being cone-shaped. They form a distinct group. Eleven specimens of this species have been taken at Glen, August 12 to 19 (P. R. Jones, H. S. Smith). Very distinct in the shape and coloration of the abdomen and the lack of a pygidial area.

Mimesa conica, n. sp.

♀. Length 5–7 mm. Face and clypeus densely clothed with silvery pubescence, that on the vertex sometimes with a yellowish tinge. Clypeus, front, vertex, and occiput all with medium-sized close punctures, those on the vertex being somewhat the closest; punctures of the cheeks apparently arranged in striae; front distinctly tuberculate between the antennae; posterior ocelli about as far apart as the distance from them to the nearest eye-margin, each with a distinct cicatrix just behind and lateral to it; scape short, black, and closely punctured, flagellum pale testaceous beneath, darker above, joints 2–6 strongly produced beneath, almost serrate; clypeus strongly produced and rounded out anteriorly; mandibles

black, blood-red at tip, which is acute and with a notch just before the apex. Pronotum with white pubescence above. Mesonotum sparsely punctured in front, closely so posteriorly, scutellum practically impunctate on disk, postscutellum clothed with long gray pubescence; mesopleura closely and distinctly punctured all over and with a coat of silvery pubescence. Metathorax rounded, uniformly rugose, the sculpture not very coarse, and with a strong median furrow, sparsely clothed with white pubescence, metapleura smooth basally. Petiole long, slender, almost twice as long as first segment, and almost as long as hind femur, trochanter and coxa combined, width about one-eighth of length, with a sulcus above on each side, convex in the middle and with a strong sulcus laterally. Abdomen with first three segments red, remaining ones black, dorsally impunctate, ventrally with a few distinct punctures; pygidial area lacking, apical segment conical, clothed with a few light hairs. Legs black, all tarsi, tips of femora more or less, anterior and intermediate tibiae, and base of hind tibiae ferruginous. Wings clear hyaline, iridescent, second cubital cell narrowed one-half above.

♂. Unknown.

Type, Glen, Sioux county, Nebraska, altitude 4,000 ft. (H. S. Smith). Described from twenty-four specimens from the above locality and from Broken Bow and Brown county, taken during July and August on flowers of *Solidago* and *Helianthus* spp. Related to *granulosa* by the absence of a pygidial area.

Mimesa proxima Cresson.

1865. *Mimesa proxima* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 488.

1898. *Psen proximus* Fox, *Transactions of the American Entomological Society,* xxv, p. 16.

Several female specimens of this species were taken at Glen during the month of August. Easily separated from the following by the differently shaped abdomen.

Mimesa unicincta Cresson.

1865. *Mimesa unicincta* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 488.

1898. *Psen unicinctus* Fox, *Transactions of the American Entomological Society,* xxv, p. 15.

Three females, also from Sioux county. Apparently not quite so common as the above.

Mimesa nebrascensis, n. sp.

♀. Length 9.5 mm. Head black, front and clypeus clothed with quite dense pubescence, the latter bare on disk; clypeus with punctures fairly

close, anterior margin sinuate so as to form what almost might be called two obtuse teeth; face above clypeus with punctures considerably more dense; a distinct tubercle between bases of antennae in front; punctures on vertex still more distinct, much sparser on occiput and cheeks, faintly striato-punctate just back of the eyes; posterior ocelli about as far apart as space from them to the nearest eye margin, the latter slightly depressed; scape of antennae black, finely punctured; flagellum pale beneath, darker above; mandibles black, rufous at tips which are bluntly rounded, with several longitudinal grooves outwardly. Pronotum closely punctured and strongly ridged, somewhat sinuate above and clothed with sparse golden pubescence. Mesonotum sparsely punctured, more closely so just before scutellum, with four or five longitudinally impressed lines anteriorly and a short one on each side just above the tegulae; pleura faintly striate above, finely punctured on disk; scutellum very sparsely punctured on the disk, longitudinally striate posteriorly, postscutellum with long golden pubescence. Metathorax with strong longitudinal rugae above turning obliquely at the juncture with the posterior face and then becoming irregular and coarsely reticulate; median depression strong; metapleura almost smooth basally, roughened and with quite long pubescence apically. Petiole about equal in length to the first segment, somewhat shorter than the hind femora, broad, width about one-fifth of its length, a longitudinal sulcus on each side above and each lateral face with a broad sulcus. First three segments of abdomen and base of fourth red, remaining segments black with margins testaceous, apical segments faintly punctured. Pygidium broad, strongly but not coarsely punctured, distinctly margined. Ventral segments with a few stiff hairs apically, the last four segments finely punctured. Legs brownish, anterior tibiae and tarsi ferruginous, clothed with golden hairs. Wings smoky hyaline, iridescent; second cubital cell narrowed two-thirds above.

♂. Unknown.

Type, Lincoln, Nebraska. This species falls in the group *argentifrons* of Fox, and judging from the descriptions is nearest to *basirufa,* but differs essentially in the sulcation of the petiole and the extent of red on the abdomen.

Mimesa cressonii Packard.

1867. *Mimesa Cressonii* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 405.

1898. *Psen Cressonii* Fox, *Transactions of the American Entomological Society,* xxv, p. 12.

Ranges across the entire state, specimens from Lincoln, West Point, Glen, and Warbonnet canyon being before me. These specimens have the pubescence on the vertex more of a golden

color, and are smaller than Fox's description would indicate, otherwise they seem to coincide fairly well, but may possibly represent a distinct species, as I have seen no authentic specimens of *cressonii*.

Mimesa mandibularis, n. sp.

♀. Length 7 mm. Insect entirely shining black, sometimes with a faint bluish cast; pubescence golden and fulvous; occiput and cheeks with fine, fairly close punctures, those on the latter slightly the smaller; front and disk of clypeus punctured as occiput; longitudinal facial carina distinct, extending to anterior ocellus; just behind each posterior ocellus is a small depression; distance between the posterior ocelli two-thirds that from the ocelli to the nearest eye margin; clypeus strongly convex, bare on the disk, quite strongly produced anteriorly forming four indistinct obtuse teeth; mandibles black, tips slightly reddish and bidentate, broad basally, scrobe with irregular punctures; antennae black, flagellum with a brownish appearance, scape strongly punctured in front. Pronotum finely and closely punctured above. Mesonotum with punctures fine, indistinct, and widely separated, just in front of scutellum deeply longitudinally striate; mesothoracic epimeron strongly carinated anteriorly, mesopleura indistinctly striato-punctate; scutellum sparsely punctured on disk, more closely so posteriorly, similar to postscutellum; metanotum with a small semitriangular depression centrally which is smooth within, remaining portion with coarse longitudinal rugae; posterior face of metathorax coarsely irregularly reticulate, lateral faces striate rugose. Petiole about as long as hind femur, trisulcate above, bisulcate on each side, gently curved. Abdomen elongate ovate, microscopically punctured, narrow margins of apical segments slightly testaceous; first ventral segment finely punctured, venter with short, sparse golden pubescence; pygidial area almost three times as long as broad at base, faintly margined and slightly depressed, with about a dozen large deep punctures or pits, and entire surface extremely minutely punctured. Legs black with fulvous pubescence, tibial spurs white. Wings smoky, iridescent, nervures black; second cubital cell narrowed at least one-half above and receiving both recurrent nervures below, each at about one-fourth of the entire width of cell from the corners.

♂. Unknown.

Type, Glen, Sioux county, Nebraska; altitude 4,000 ft., August 21, 1906 (P. R. Jones). This species is apparently related to *niger*. In Fox's synopsis (*Transactions of the American Entomological Society,* xxv, p. 1) it runs to dicotomy 5, but the clypeus is bare and the front is covered with golden pubescence instead of silvery. Differs also from *niger* in the puncturation and shape of anterior margin of clypeus.

Subfamily **PEMPHREDONINAE**

KEY TO THE GENERA

Front wings with two recurrent nervures.
  Abdomen with the petiole never longer than the hind coxae.
    Hind tibiae along the outer face spinous or subserrate; head, seen from in front, wider than long, clypeus at apex emarginate; abdomen ovate, not longer than the head and thorax united, the petiole very short ..... *Diodontus*
    Hind tibiae along the outer face smooth, unarmed; labrum triangularly produced ..... *Passaloecus*
  Abdomen with the petiole longer than the hind coxae; mandibles tridentate; first cubital cell receiving both recurrent nervures, or the second recurrent is interstitial with the first transverse cubital nervure ..... *Cemonus*
Front wings with only one recurrent nervure; front wings with two cubital cells; recurrent nervure received by the first cubital cell near its middle or a little beyond; second cubital cell quadrate; mandibles bidentate ..... *Stigmus*

Genus **Diodontus** Curtis

Diodontus nigritus Fox.

1892. *Diodontus nigritus* Fox, *Transactions of the American Entomological Society,* xix, p. 317.

I find in the collection a single female without a locality label, but presumably from the western portion of the state, as the type was taken in Colorado.

Genus **Passaloecus** Schuckard

Passaloecus mandibularis (Cresson).

1865. *Pemphredon mandibularis* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 487.

1892. *Passaloecus mandibularis* Fox, *Transactions of the American Entomological Society,* xix, p. 320.

Six females were taken at Glen, during the month of August. Easily recognized by the peculiarly shaped mandibles.

Genus **Cemonus** Jurine

Cemonus inornatus (Say).

1824. *Pemphredon inornatus* Say, *Long's Expedition,* ii, Appendix, p. 339.

1859. *Pemphredon inornatus* Say, Leconte edition, ii, p. 229.

1892. *Pemphredon inornatus* Fox, *Transactions of the American Entomological Society*, xix, p. 312.

Eastern portion of the state. Omaha, July 17 (W. D. Pierce); Lincoln, May 20 (L. Bruner).

Genus **Stigmus** Jurine

Stigmus americanus Packard.

1867. *Stigmus americanus* Packard, *Proceedings of the Entomological Society of Philadelphia*, vi, p. 386.

1892. *Stigmus americanus* Fox, *Transactions of the American Entomological Society*, xix, p. 322.

Five specimens, both sexes, of this little insect were taken at Glen, during August, 1906 (L. Bruner, H. S. Smith). Easily recognized by the large and conspicuous stigma.

Family **CRABRONIDAE**

KEY TO THE SUBFAMILIES

Abdomen beneath not flat but convex, and not carinate laterally; second discoidal cell not much longer than the first, usually shorter and not very narrow .....CRABRONINAE

Abdomen beneath very flat and carinate laterally, the dorsal segment with a constriction at the sutures and margined at apex; transverse median nervure in front wings uniting with the median nervure far beyond the origin of the basal nervure, the second discoidal cell in consequence being very long and narrow, much longer than the first discoidal cell; mandibles at apex acute, not dentate.....ANACRABRONINAE

Subfamily **CRABRONINAE**

KEY TO THE GENERA

Abdomen petiolate, or with the first segment petioliform and nodose at apex; first recurrent nervure received at the middle of the first cubital cell .....*Rhopalum*

Abdomen not petiolate, or with the first segment petioliform and nodose at apex; first recurrent nervure received at or beyond the middle of the first cubital cell.

Mandibles at apex bi- or tridentate, sometimes indistinctly so, but never acute .....*Crabro*

Mandibles at apex simple, acute; first recurrent nervure received by the first cubital cell at the middle.....*Lindenius*

Genus **Rhopalum** Kirby

Rhopalum decorus (Fox).

1895. *Crabro decorus* Fox, *Transactions of the American Entomological Society,* xxii, p. 200.

A tiny black wasp, about 5 mm. in length, easily recognized by the petioliform first abdominal segment, which is nodose at apex; intermediate and anterior legs almost entirely yellow, also scape of antennae; mandibles whitish, brown apically. Five specimens were taken at Glen, August 13 (H. S. Smith). These were nesting in a clay butte.

Genus **Crabro** Fabricius

SYNOPSIS OF THE SPECIES

Mesopleura without a distinct ridge, carina or crest (rarely with a small, pointed tubercle) before the middle coxae; antennae in the male thirteen-jointed; metathorax often smooth, shining..... 1

Mesopleura with a distinct ridge, carina or crest before the middle coxae; antennae in both sexes twelve-jointed; metathorax never smooth, but coarsely sculptured..... 18

1. Ocelli arranged in an equilateral triangle, or nearly, the lateral ocelli about as far apart as from the front ocellus; abdomen without yellow markings 2

1. Ocelli arranged in an obtuse triangle, the lateral ocelli being about twice as far apart as from the front ocellus..... 5

2. Recurrent nervure in front wings received by the cubital cell far beyond the middle; abdomen red, black apically; temples produced into a tooth below.....*vierecki*

2. Recurrent nervure in front wings received by the cubital cell at or about the middle; abdomen entirely black; temples simple beneath 3

3. Scutellum black; intermediate tibiae yellow on basal portions only, *incavus*

3. Scutellum entirely yellow; intermediate tibiae entirely yellow on outer side 4

4. Abdomen somewhat longer than head and thorax united, the first segment not broad and narrowed basally; length 6 mm. .....*scutellifer*

4. Abdomen a little shorter than head and thorax united, the first segment broad; length 4.5–5 mm.....*lentus*

5. Males 6

5. Females 12

6. Anterior legs abnormally developed, with a shield-like expansion on the tibiae..... 7

6. Anterior legs normally developed, without a shield-like expansion on the tibiae..... 11
7. Flagellum of antennae not compressed, the joints scarcely wider than long, the first two always longer than wide; anterior tarsi not especially broad, without an appendage..... 8
7. Flagellum of antennae compressed, the joints much widened, the first three or four joints fully twice as wide, or wider, than long; anterior tarsi dilated, with an appendage..... 9
8. Scutellum with two yellow spots; tibial shield yellow; wings hyaline, nervures very pale.....*vernalis*
8. Scutellum black; tibial shield black with a few lighter marks; wings faintly clouded, nervures dark.....*advenus*
9. First joint of flagellum not broadened to meet the second, not longer than the pedicellum; joints 2–6 with a large appendage on the outer margin, that on 2 narrowest and most curved, that on 6 broadest and not curved; tibial shield brownish, yellowish green at base, covered with pale dots; scutellum and postscutellum black; first abdominal segment banded; intermediate legs except coxae entirely yellow .....*argus*
9. First joint of flagellum broadened to meet the second, longer than the pedicellum, none of the joints with a long acute appendage on the lower margin..... 10
10. First joint of flagellum not hirsute beneath; thorax not at all marked with yellow; intermediate femora in part yellow; length 8–10 mm.....*latipes*
10. First joint of flagellum with a bunch of pale, curled hair beneath; pronotum and scutellum usually marked with yellow; intermediate femora black; length 11–13 mm, *largior*
11. Scape of antennae cylindrical, not broader apically than at base, flagellum rather slender; mesosternum with short, sparse, pale silvery pubescence; wings fusco-hyaline.....*hilaris*
11. Scape of antennae compressed, much broader apically than at base, flagellum stout; mesosternum with long dense, white hair; wings hyaline .....*cingulatus*
12. First joint of hind tarsi distinctly longer than the longer spur of hind tibiae..... 13
12. First joint of hind tarsi of about equal length to the longer spur of hind tibiae; a yellow spot just back of tubercles, *hilaris*
13. First transverse cubital nervure received by the marginal cell before its middle, the space between the recurrent nervure and the apex of the cubital cell much greater than the width of the latter cell at apex..... 14

13. First transverse cubital nervure received in about the middle of the marginal cell, the space between the recurrent nervure and the apex of the cubital cell not or rarely greater than the width of the latter cell at apex..... 15
    14. Pronotum with the lateral tooth small and weak; pronotum entirely, scutellum and metanotum in part, yellow; second and third ventral segments sometimes spotted with yellow, *cingulatus*
    14. Pronotum with the lateral tooth strong; pronotum with two yellow spots only; no yellow on scutellum, metanotum, or venter .....*argus*
15. Sculpture of head and thorax fine, rather indistinct, punctures shallow; clypeus and scape except apex, black; markings whitish; head and thorax clothed with thin, pale, long pubescence ..... *vernalis*
15. Sculpture of head and thorax, especially of the mesonotum, distinct, well marked 16
    16. Metanotum very coarsely sculptured, with strong longitudinal or oblique ridges, which extend to the base of posterior face; scape yellow anteriorly; bands on first three abdominal segments broadly interrupted; tips of femora not yellow .....*advenus*
    16. Metanotum not so coarsely sculptured; if it is, then the ridges become obsolete toward the posterior face; lateral markings on abdominal segments three and four broad; second and third ventral segments spotted, hind tarsi yellow 17
17. Length 14 mm. or over; thorax with heavy fuscous pubescence, *largior*
17. Length 10 mm. or less; thorax with thin gray pubescence.....*vicinus*
    18. Males 19
    18. Females 25
19. Supraorbital foveae always distinct, sharply defined, elongate or linear; head quadrate coarsely punctured; abdomen with one, more rarely with three terminal bands, remaining segments with transverse yellow spots.....*interruptus*
19. Supraorbital foveae wanting or at most not sharply defined, indicated only by a slight glabrous depression or streak in the sculpture close to the eye margin..... 20
    20. Front femora with a tooth or dilate angulation at base beneath; antennal joints 3–6 emarginate beneath, the sixth very strongly so; mesopleura and metathorax coarsely striate 21
    20. Front femora without a tooth beneath..... 22
21. First dorsal segment of abdomen with punctures much more dis-

13. First transverse cubital nervure received in about the middle of the marginal cell, the space between the recurrent nervure and the apex of the cubital cell not or rarely greater than the width of the latter cell at apex..... 15

14. Pronotum with the lateral tooth small and weak; pronotum entirely, scutellum and metanotum in part, yellow; second and third ventral segments sometimes spotted with yellow, *cingulatus*

14. Pronotum with the lateral tooth strong; pronotum with two yellow spots only; no yellow on scutellum, metanotum, or venter .....*argus*

15. Sculpture of head and thorax fine, rather indistinct, punctures shallow; clypeus and scape except apex, black; markings whitish; head and thorax clothed with thin, pale, long pubescence ..... *vernalis*

15. Sculpture of head and thorax, especially of the mesonotum, distinct, well marked 16

16. Metanotum very coarsely sculptured, with strong longitudinal or oblique ridges, which extend to the base of posterior face; scape yellow anteriorly; bands on first three abdominal segments broadly interrupted; tips of femora not yellow .....*advenus*

16. Metanotum not so coarsely sculptured; if it is, then the ridges become obsolete toward the posterior face; lateral markings on abdominal segments three and four broad; second and third ventral segments spotted, hind tarsi yellow 17

17. Length 14 mm. or over; thorax with heavy fuscous pubescence, *largior*

17. Length 10 mm. or less; thorax with thin gray pubescence.....*vicinus*

18. Males 19

18. Females 25

19. Supraorbital foveae always distinct, sharply defined, elongate or linear; head quadrate coarsely punctured; abdomen with one, more rarely with three terminal bands, remaining segments with transverse yellow spots.....*interruptus*

19. Supraorbital foveae wanting or at most not sharply defined, indicated only by a slight glabrous depression or streak in the sculpture close to the eye margin..... 20

20. Front femora with a tooth or dilate angulation at base beneath; antennal joints 3–6 emarginate beneath, the sixth very strongly so; mesopleura and metathorax coarsely striate 21

20. Front femora without a tooth beneath..... 22

21. First dorsal segment of abdomen with punctures much more dis-

tinct than on the remaining segments; first dorsal segment immaculate ..... *odyneroides*

21. First dorsal segment of abdomen with punctures but little more distinct than on the remaining ones; first dorsal segment with a small yellow spot on each side..... *chrysargyrus*

22. Front tarsi abnormal, dilated or at least flattened; antennal joints 3 and 6 emarginate, the third about as long as 4 and 5 united; middle tibial spurs distinct; abdomen minutely but distinctly punctate..... 23

22. Front tarsi normal, not dilated 24

23. First joint of median tarsi strongly angular on outer margin, not longer than the two following joints united; sculpture of mesonotum not exceedingly coarse; usually a yellow spot just back of tegulae..... *bigeminus*

23. First joint of median tarsi but slightly angular on the outer margin, slightly longer than the two following joints united; sculpture of mesonotum exceedingly coarse; no yellow spot just back of tegulae..... *rufifemur*

24. Middle tibiae without an apical spur; abdomen smooth, impunctate, or at most microscopically punctate; first joint of flagellum distinctly longer than the second; fore femora reddish anteriorly ..... *sexmaculatus*

24. Middle tibiae with an apical spur; abdomen sparsely but distinctly punctate ..... *stirpicolus*

25. Mandibles at apex bidentate, rarely truncate and indistinctly bidentate; pygidium in female triangular, above flat, never deeply excavated and without a well-defined pygidial area, the lateral carinae never being highly elevated..... 26

25. Mandibles at apex tridentate; pygidium narrowed toward apex, deeply channeled or excavated, with a well-defined, narrowed pygidial area, the lateral carinae high; if triangular, which is rare, excavated 27

26. Femora black, yellow distally; head and entire abdomen finely punctured ..... *bigeminus*

26. Femora reddish; head and first dorsal segment of abdomen rather coarsely punctured ..... *rufifemur*

27. Supraorbital foveae wanting or indicated only by a slight glabrous streak or depression near the upper border of the eyes... 28

27. Supraorbital foveae sharply defined, long, linear or oblong; clypeus with a median ridge or carina and quadrately produced medially, the apex being truncate or subemarginate; head large, quadrate, rather coarsely confluently punctate. *interruptus*

28. Third antennal joint about as long as 4 and 5 united, or nearly three times as long as pedicel; abdomen shining,

but microscopically punctate, the punctures of the first segment a little larger 29

28. Third antennal joint much longer than 4 and 5 united..... 30

29. First dorsal segment of abdomen with the puncturation much more distinct than on the remaining segments; greater part of femora and tibiae in part black; first abdominal segment usually spotted with yellow .....*odyneroides*

29. First dorsal segment with the puncturation but little more distinct than on the remaining segments; first abdominal segment usually marked with yellow .....*chrysargyrus*

30. Abdomen, or at least the basal segment, highly polished, impunctate or at most sparsely microscopically punctured; pygidial area much narrowed, deeply excavated and fully twice as long as wide at base; first joint of flagellum twice as long as the pedicel; scutellum black, postscutellum yellow .....*sexmaculatus*

30. Abdomen distinctly, minutely (somewhat sparsely) punctate; pygidial area more nearly triangular, and not twice as long as wide at base; first joint of flagellum only a little longer than the pedicel; both scutellum and postscutellum marked with yellow .....*stirpicolus*

Crabro cingulatus (Packard).

1867. *Thyreopus cingulatus* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 366.

1895. *Crabro cingulatus* Fox, *Transactions of the American Entomological Society,* xxii, p. 177.

Only one specimen of this species, a male, has thus far been taken within the state boundaries, this at West Point, June 7, on *Rosa* (J. C. Crawford).

Crabro hilaris F. Smith.

1856. *Crabro (Thyreopus) hilaris* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 416.

1895. *Crabro hilaris* Fox, *Transactions of the American Entomological Society,* xxii, p. 179.

In appearance very much like the preceding, but easily distinguished by the relative lengths of the first posterior tarsal joint and longer tibial spur. Rather more common than the above, I have before me five female specimens from Lincoln and West Point, June to October.

Crabro advenus F. Smith.

1856. *Crabro advenus* F. Smith, *Catalogue of Hymenoptera in the British Museum,* iv, p. 421.

1895. *Crabro advenus* Fox, *Transactions of the A[illegible]tomological Society*, xxii, p. 171.

I[illegible] the entire state; Glen, West Point, Lincoln, Weeping Wa[illegible]; fli[illegible] from April to September. This is one of the first [illegible]s to a[illegible]ar in eastern Nebraska in the spring.

[illegible] (Packard).

1[illegible] *Thyreopus vernalis* Packard, *Proceedings of the Entomological Society of Philadelphia*, vi, p. 369.

1895. *Crabro vernalis* Fox, *Transactions of the American Entomological Society*, xxii, p. 173.

So far taken only in the northwestern corner of the state, in Sioux county. As its name indicates, it is a vernal species, the specimens having been taken in May.

Crabro largior Fox.

1895. *Crabro largior* Fox, *Transactions of the American Entomological Society*, xxii, p. 161.

Range extends across the entire state. The specimens studied are from Warbonnet canyon and Lincoln, taken during the month of June. One of the largest Crabronids.

Crabro latipes F. Smith.

1856. *Crabro latipes* F. Smith, *Catalogue of Hymenoptera in the British Museum*, iv, p. 396.

1895. *Crabro latipes* Fox, *Transactions of the American Entomological Society*, xxii, p. 169.

This species is represented by a single male from Lincoln, but as it is found in almost all of the western states will doubtless be taken sooner or later in the western portion of our own state.

Crabro argus (Packard).

1867. *Thyreopus argus* Packard, *Proceedings of the Entomological Society of Philadelphia*, vi, p. 359.

1895. *Crabro argus* Fox, *Transactions of the American Entomological Society*, xxii, p. 165.

Like the above, represented by a single male specimen, but from the northwestern portion of the state, it having been taken at Glen, August 12, 1906 (P. R. Jones).

Crabro vicinus Cresson.

1865. *Crabro vicinus* Cresson, *Proceedings of the Entomological Society of Philadelphia*, iv, p. 479.

1895. *Crabro vicinus* Fox, *Transactions of the American Entomological Society,* xxii, p. 170.

Four females, also from Glen and Warbonnet canyon, during the month of August.

Crabro lentus Fox.

1895. *Crabro lentus* Fox, *Transactions of the American Entomological Society,* xxii, p. 190.

One female from West Point in June (P. R. Jones).

Crabro incavus Fox.

1895. *Crabro incavus* Fox, *Transactions of the American Entomological Society,* xxii, p. 188.

A single female of this species from the same locality (H. S. Smith).

Crabro scutellifer Dalla Torre.

1824. *Crabro scutellatus* Say, *Long's Expedition,* ii, Appendix, p. 341 (not of Scheven).

1859. *Crabro scutellatus* Say, Leconte edition, i, p. 230.

1895. *Crabro scutellatus* Fox, *Transactions of the American Entomological Society,* xxii, p. 190.

Two females of this species were taken at Glen, on August 13, 1906 (H. S. Smith).

Crabro vierecki, n. sp.

♀. Length 7.5 mm. Head black, finely punctured throughout; front with a deep median furrow extending from base of clypeus to anterior ocellus; ocelli almost forming an equilateral triangle, space between lateral ones greater, however, than that between them and the anterior one; the space between the lateral ocelli is one-half that between them and the nearest eye margin; supraorbital foveae indicated by broad depressions; antennae dark, scape long and yellow anteriorly; clypeus three or four times longer than broad, and clothed with a dense coat of silvery white pubescence, anterior margin with six distinct teeth; mandibles rufous, bluntly rounded at the ends; cheeks beneath with a long tooth. Prothorax long, strongly sulcate and carinate, lateral angles quite prominent, and with two yellow spots; sides and top of prothorax with longitudinal rugae. Mesothorax finely punctured, anteriorly with indications of three longitudinal ridges; scutellum finely punctured, postscutellum white, tubercles white. Metanotum longitudinally striate, the truncation foveolated, the posterior face faintly rugose; metapleura almost smooth, mesopleura finely punctured and shining, each with a dimple-like depression just beneath the tegulae, and with scattered silvery hairs. Abdomen shining, almost impunctate,

first three and part of fourth segments red; pygidium short, about one and one-fourth times long as broad, with a few scattered punctures. Legs black, anterior and intermediate tibiae with a line outside, posterior tibiae at base and base of tarsi whitish. Wings smoky hyaline.

♂. Unknown.

Type, Glen, Sioux county, Nebraska, altitude 4,000 ft., August 13, 1906 (H. S. Smith). This species falls in the subgenus *Hoplocrabro* Thompson, and is the second one of this group for North America, Mr. Viereck, to whom this specimen was sent for study, having described the first one from California.

Crabro interruptus (Lepeletier).

1834. *Solenius interruptus* Lepeletier, *Annales de la Societe Entomologique de France,* iii, p. 716.

1895. *Crabro interruptus* Fox, *Transactions of the American Entomological Society,* xxii, p. 136.

Probably our commonest Crabronid. Thirty-six specimens of both sexes from Lincoln, Weeping Water, Holt county, West Point, Warbonnet canyon, Jim creek, and Glen, from May to October. Visits *Solidago, Astragalus,* and *Pastinaca.*

Crabro chrysargyrus Lepeletier.

1834. *Crabro chrysargyrus* Lepeletier, *Annales de la Societe Entomologique de France,* iii, p. 711.

1895. *Crabro chrysarginus* Fox, *Transactions of the American Entomological Society,* xxii, p. 155.

This species evidently has quite an extensive range, but is not numerous in individuals, being represented in this collection by two males, one from Lincoln, in September, the other from the opposite end of the state, Warbonnet canyon, on *Malvastrum* (M. Cary).

Crabro odyneroides Cresson.

1865. *Crabro odyneroides* Cresson, *Proceedings of the Entomological Society of Philadelphia,* iv, p. 481.

1895. *Crabro odyneroides* Fox, *Transactions of the American Entomological Society,* xxii, p. 153.

An uncommon species. Two examples from Glen, August 20, 1906, at flowers of *Cleome serrulata* (H. S. Smith). This species is rendered very distinct by the difference in puncturation of the first and remaining segments.

Crabro sexmaculatus Say.

1824. *Crabro sexmaculatus* Say, *Long's Expedition,* ii, Appendix, p. 341.

1859. *Crabro sexmaculatus* Say, Leconte edition, i, p. 230.

1895. *Crabro sexmaculatus* Fox, *Transactions of the American Entomological Society,* xxii, p. 146.

Found throughout the entire state, having been taken at Lincoln, Ashland, York, West Point, Warbonnet canyon, and Glen, during August. Easily distinguishable by the impunctate abdomen and peculiar ornamentation of same.

Crabro stirpicolus Packard.

1866. *Crabro stirpicola* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 111.

1895. *Crabro stirpicolus* Fox, *Transactions of the American Entomological Society,* xxii, p. 148.

Eastern portion of the state, taken at Lincoln and West Point, from June to August. A small species said by the Peckhams to nest in the stems of raspberry.

Crabro rufifemur Packard.

1866. *Crabro rufifemur* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 81.

1895. *Crabro rufifemur* Fox, *Transactions of the American Entomological Society,* xxii, p. 158.

Quite common throughout the entire state. I have specimens from Omaha, Lincoln, West Point, Gordon, and Glen, from June to September. Recognizable at once by the reddish femora.

Crabro bigeminus Patton.

1879. *Crabro bigeminus* Patton, *Canadian Entomologist,* xi, p. 213.

1895. *Crabro bigeminus* Fox, *Transactions of the American Entomological Society,* xxii, p. 157.

Not so common as the former, having been taken only in the northwestern portion of the state, in Warbonnet canyon, during the month of July at flowers of *Petalostemon* and *Melilotus* (Cary, Carriker).

Genus **Lindenius** Lepeletier and Brullé

SYNOPSIS OF THE SPECIES

Cheeks with a strong spine beneath ..... *armaticeps*
Cheeks smooth, unarmed 1

1. Clypeus yellow; truncation or convexities of the metathorax distinctly and obliquely striate.....*flaviclypeus*
1. Clypeus dark; convexities of the enclosure of metathorax practically smooth, sometimes slightly rugose anteriorly....*errans*

Lindenius armaticeps (Fox).

1895. *Crabro armaticeps* Fox, *Transactions of the American Entomological Society,* xxii, p. 185.

A male specimen was taken at West Point on June 20, 1905 (H. S. Smith), and a female at Glen, August 17, 1906, on *Solidago* (H. S. Smith). This species and the following are evidently quite rare in this state. The specimens before me differ from Fox's description in having the scutellum black instead of yellow, but inasmuch as this is a variable character in this genus I have unhesitatingly placed them here. The female I am not so sure of, as it has a very different appearance, the head being much larger relatively and more quadrate looking from above. However, as the female of this species is heretofore unknown, and on account of the spined gula I feel comparatively safe in placing it here until more specimens are taken.

Lindenius flaviclypeus (Fox).

1895. *Crabro flaviclypeus* Fox, *Transactions of the American Entomological Society,* xxii, p. 186.

So far this species has been found only in the northwestern corner of the state and uncommonly. These were taken at Glen, on August 20 (H. S. Smith).

Lindenius errans (Fox).

1895. *Crabro errans* Fox, *Transactions of the American Entomological Society,* xxii, p. 184.

Apparently inhabits the entire state, as I have specimens from Lincoln, West Point, Crawford, and Glen. It flies from May to August on flowers of *Solidago* and *Mentzelia.* Some of the specimens have the scutellum yellow and others entirely black.

Subfamily **ANACRABRONINAE**

Genus **Anacrabro** Packard

Anacrabro ocellatus Packard.

1866. *Anacrabro ocellatus* Packard, *Proceedings of the Entomological Society of Philadelphia,* vi, p. 68.

1895. *Anacrabro ocellatus* Fox, *Transactions of the American Entomological Society,* xxii, p. 133.

Nine specimens of this species have been taken in Nebraska as follows: Carns, July, on *Euphorbia* (M. H. Swenk); West Point (L. Bruner); Neligh, August, on *Carduus* (M. Cary).

Family **OXYBELIDAE**

KEY TO THE GENERA

Postscutellar spine long, broad, and emarginate at apex; mandibles without a median tooth within; clypeus in female truncate, in male four- or five-dentate ..... *Notoglossa*

Postscutellar spine acute or bluntly rounded at apex, never emarginate; mandibles with a median tooth within; clypeus in female truncate, in male three-dentate ..... *Oxybelus*

Genus **Notoglossa** Dahlbom

SYNOPSIS OF THE SPECIES

Scutellum with light colored membranous lateral margins; spine very short, mostly white; head, mesonotum, and scutellum sparsely punctured; abdomen, with the exception of one or two segments, bright rufous; length 3.5–4 mm..... *abdominalis*

Scutellum without membranous margins; spine longer; head, mesonotum, and scutellum more closely punctured; abdomen, excepting sometimes two apical segments, black with whitish or yellow ornaments 1

1. Vertex with a distinct median tubercle; occiput transversely striato-punctate; scutellum coarsely punctured; squamae terminating in a curved point; spine with a thin semitransparent tip; abdomen finely punctured; tubercles, tegulae, squamae, and narrow transverse spots on sides of segments 1–5 whitish; length 5–7 mm..... *cockerelli*

1. Vertex without a median tubercle; occiput normally punctured; scutellum with smaller punctures..... 2

2. Lateral points of squamae much exceeding the tips; sides of spine practically straight from tip to base, apical third pale; scutellum entirely black ..... *intermedia*

2. Lateral points of squamae not exceeding the tips; sides of spine strongly curved, almost unicolorous throughout; scutellum of female usually with two yellow dots.. *emarginata*

Notoglossa abdominalis (Baker).

1896. *Oxybelus abdominalis* Baker, *Entomological News,* vii, p. 158.

Three females, Glen, August (Swenk, Jones, Smith); one male, West Point, June, 1905.

Notoglossa cockerelli (Baker).

1896. *Oxybelus cockerelli* Baker, *Entomological News*, vii, p. 61.

A single male from Glen, August, 1906 (H. S. Smith).

Notoglossa intermedia (Baker).

1896. *Oxybelus intermedius* Baker, *Entomological News*, vii, p. 160.

One female, also from Glen, August, 1906 (H. S. Smith).

Notoglossa emarginata (Say).

1837. *Oxybelus emarginatus* Say, *Boston Journal of Natural History*, i, p. 375.

1859. *Oxybelus emarginatus* Say, Leconte edition, ii, p. 757.

1889. *Oxybelus emarginatus* Robertson, *Transactions of the American Entomological Society*, xvi, p. 84.

1901. *Notoglossa emarginata* Robertson, *Ibid.*, xxvii, p. 204.

Our commonest Oxybelid, as it seems to be everywhere else. Ranges across the entire state and flies from June to August. Seems to be confused with *americana* Robertson.

Genus **Oxybelus** Latreille

SYNOPSIS OF THE SPECIES

Vertex with a distinct median tubercle; posterior ocelli each placed on the upper and outer side of a tubercle, causing these ocelli to look outwards and upwards instead of in the normal direction... 1

Vertex without a distinct median tubercle; posterior ocelli normally placed 3

1. Size small, 6.5 mm.; punctures back of ocelli in striae; wings hyaline; abdominal segments only slightly constricted, punctures of medium size; ornaments whitish.....***striatus***

1. Size larger, 7.5–10 mm.; occipital punctures normal; wings slightly clouded; abdominal segments strongly constricted, punctures very coarse; ornaments yellowish..... 2

2. Mesothorax entirely black .....***cornutus***

2. Anterior portion of mesonotum red.....var. ***quadricolor***

3. Squamae apparently broadly joined at base (this appearance is caused by the postscutellum being yellow)..... 4

3. Squamae not apparently joined at base..... 5

4. Body covered with an unusually dense growth of short pubescence; postscutellar spine with sides almost parallel or slightly wider at tip, which is light colored; two apical segments of abdomen bright ferruginous.....***glenensis***

4. Body not unusually pubescent; postscutellar spine rapidly narrowed to an acute point, which is black; apical segments of abdomen not ferruginous.....*albosignatus*
5. Abdomen of male with strongly developed lateral spines; pubescence very sparse; postscutellar spine sharp pointed; size, 6–9 mm. .....*subulatus*
5. Abdomen of male without strongly developed lateral spines; postscutellar spine rounded or truncate..... 6
6. Postscutellar spine slightly narrowed apically; squamae separated by about the distance across the base of one; upper portion of posterior face of metathorax coarsely reticulate, balloon-shaped area impunctate; apical segment of abdomen dark 7
6. Postscutellar spine somewhat widened at apex; squamae practically touching; posterior face of metathorax closely punctured, including the balloon-shaped area; faint indications of lateral abdominal spines; apical segment of abdomen rufous .....*apicatus*
7. Smaller specimens; abdominal bands narrow and widely separated; wing nervures darker .....*quadrinotatus*
7. Larger, more pubescent; abdominal bands broader and more approximate, forming continual bands on segments 4 and 5; wing nervures more yellowish.....var. *montanus*

Oxybelus cornutus Robertson.

1889. *Oxybelus cornutus* Robertson, *Transactions of the American Entomological Society,* xvi, p. 80.

I have nine specimens of the typical form of this species and six specimens of what Professor Cockerell calls *quadricolor,* but which is only a form of *cornutus.* I have all intergradations between the two forms. Glen, August 12 to 19; Broken Bow, August 28, 1906.

Oxybelus subulatus Robertson.

1889. *Oxybelus subulatus* Robertson, *Transactions of the American Entomological Society,* xvi, p. 79.

Two specimens from Jim creek in Sioux county, and from West Point, during June and July.

Oxybelus albosignatus, n. sp

♀. Length 9.5 mm. Insect black, ornaments whitish, with only a faint tinge of yellow; face clothed with rather dense silvery pubescence, that on the occiput more golden; occiput, vertex, and face with medium-sized rather close punctures, those on the clypeus and lower portion of face

much finer than above; clypeal process quite prominent, more so than in *subulatus;* mandibles black, rufous medially; cheeks with punctures arranged in rows or striae; ocelli normal; flagellum of antennae uniform dark brown. Prothorax carinate, rounded on the sides and sparsely punctured, with two yellowish white dots laterally. Mesothorax and scutellum with a weak longitudinal median carina, almost imperceptible on the latter, which has a reflexed margin and is very coarsely punctured; tubercles yellowish white; propleura with extremely fine punctures, mesopleura very coarsely punctured, especially anteriorly, and with several strong ridges or elevations running downward; crest before intermediate coxae distinct; metapleura with numerous longitudinal ridges; posterior face of metathorax with numerous polygonal reticulations; a strong median carina starts at the juncture of the abdomen and extends upward to about one-third of the altitude of the metathorax where it becomes bifurcate, the forks forming a balloon-shaped depression which is impunctate and almost smooth within; squamae terminating in quite long curved points; the postscutellum yellow, almost concolorous with squamae, and making it appear as if they were broadly joined medially. Postscutellar spine black, broad at base, and rapidly narrowed to an acute point. Abdomen with quite large, medium close punctures dorsally, exceedingly coarse sparse punctures ventrally; abdominal bands quite broad, those on one and two narrowly interrupted, remaining ones entire; apical segment with golden pubescence. Legs black, anterior and intermediate femora at tip beneath, and all tibiae outwardly more or less yellowish white, tarsi brownish; posterior and intermediate tibiae quite strongly spined outwardly. Wings clear hyaline excepting distal and posterior margins, which are smoky; nervures brownish.

♂. Unknown.

Type, West Point, Nebraska, June 28, 1905 (P. R. Jones); paratype (?) Holt county, Nebraska. This species is related to *subulatus* Robertson by the acute postscutellar spine and the coarse puncturation of the abdomen. I am undecided as to whether or not the Holt county specimen belongs to this species. It differs in being rather smaller, has two white spots on the scutellum, the markings on the prothorax and tubercles are connected, and the sculpture not quite so strong. It may prove to be distinct.

Oxybelus quadrinotatus Say.

1824. *Oxybelus quadrinotatus* Say, *Long's Expedition*, ii, Appendix, p. 338.

1859. *Oxybelus quadrinotatus* Say, Leconte edition, i, p. 228; ii, p. 758.

1889. *Oxybelus quadrinotatus* Robertson, *Transactions of the American Entomological Society*, xvi, p. 78.

Fairly common, ranging across the entire state. Glen, Crawford, West Point, and Lincoln, June, July, and August on flowers of *Solidago, Mentzelia,* and *Spirea.* I have also one specimen of the variety *montana* from Warbonnet canyon, July 21 (M. Cary).

Oxybelus striatus Baker.

1896. *Oxybelus striatus* Baker, *Entomological News,* vii, p. 60.

Four specimens of both sexes were taken at Glen, August 14 to 17, on *Solidago* (P. R. Jones, H. S. Smith).

Oxybelus robertsonii Baker.

1896. *Oxybelus robertsonii* Baker, *Entomological News,* vii, p. 156.

One male specimen from Warbonnet canyon, July 25, on *Eriogonum* I have referred to this species.

Oxybelus apicatus, n. sp.

♂. Length 5.5 mm. Insect black, pubescence short and sparse, silvery; pubescence on face considerably longer than on any other portion of the body; facial and occipital punctures fine and fairly close, although not so dense as in the following species, those on the lower portion of the cheeks with fine striae; clypeal process very prominent; mandibles rufous, tips slightly darker; ocelli normal; scape of antennae dark, with a light spot beneath at the apex, flagellum light ferruginous. Prothorax rounded on the sides, with fine punctures, rather more sparse than on the mesothorax, and without white markings. Mesothorax with medium-sized close punctures, scutellum bicarinate; squamae practically touching each other, terminal points short and strong; postscutellar spine black, truncate and gradually but only slightly widened at the tip, concave above; pleura punctured as mesonotum, metapleura finely striato-punctate; posterior face of metathorax finely punctured, two longitudinal carinae joining to form one below, above making a triangular enclosure which is concave and impunctate within below, and convex and punctured above; a short carina separates the posterior face from the metapleura, extending from the juncture of the abdomen one-third of the distance upwards. Abdomen finely and closely punctured dorsally, punctures sparse and irregular ventrally; segments 1–4 with slight bands, these bands white apically and the remaining portion orange, the orange portion slightly interrupted in the middle; apical half of 5 and all of 6 and 7 bright rufous; apical plate strongly emarginate. Legs black, tibiae brownish with tips lighter, tarsi light ferruginous, posterior and intermediate tibiae with stout light-colored spines. Wings hyaline, iridescent, nervures brownish.

♀. Unknown.

Type, Warbonnet canyon, Sioux county, Nebraska, July 20,

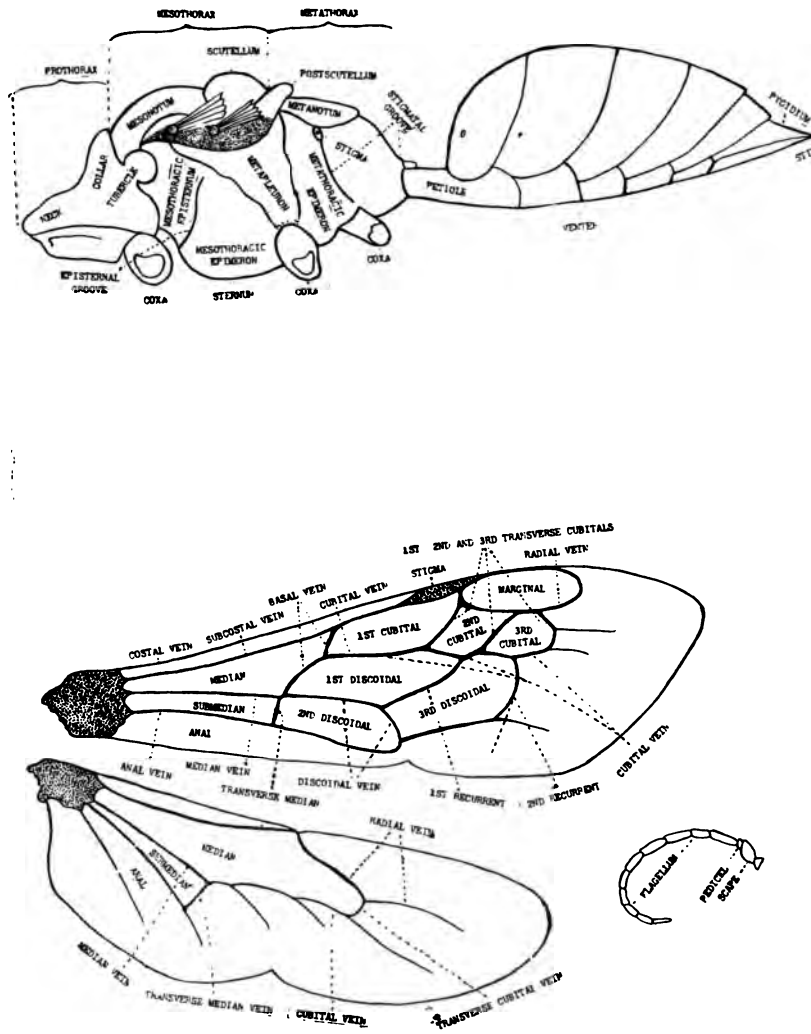
1901, at flowers of *Eriogonum* (M. Cary). Related to *varicoloratus* and *glenensis*, but differs from both by the bicarinate scutellum, position of the ocelli, shape of squamae and postscutellar spine, and other minor characters.

Oxybelus glenensis, n. sp

♀. Length 5.5 mm. Insect black, covered with a short dense silvery pubescence; face with pubescence rather longer than that on the remaining portion of the body; occiput and face with very close, medium-sized punctures, those on the cheeks rather larger and more sparse; clypeal process fairly prominent; mandibles light ferruginous, tips and bases dark; ocelli large and prominent, normally situated; scape of antennae light-colored in front, flagellum pale rufous. Prothorax not carinate, and rounded at the sides, with punctures fairly close. Mesonotum without a carina, scutellum with a very faint one, also with a narrow membranous margin, and punctured about as mesonotum; squamae apparently touching in the middle and with weak lateral curved points which very slightly surpass the tips of the squamae; postscutellar spine about one-third wider at tip than at base, truncate and light colored distally, concave above; tubercles with a light spot; pleura punctured as mesonotum, metapleura finely striate, upper portion of posterior face of metathorax striated and with pubescence longer than on any other portion of the body; depression below spine punctate above, almost smooth below; lower portion of posterior face finely punctate. Abdomen with close extremely fine punctures, first and second ventral segments finely and very sparsely punctured, remaining ones almost impunctate; abdomen with light-colored entire bands on segments 1–4, these bands slightly ferruginous basally; two apical segments bright rufous, hardly constricted between segments. Legs black, all femora white at distal end, intermediate and posterior tibiae white basally and apically, anterior tibiae yellowish white, all tarsi whitish. Wings only faintly clouded, almost hyaline, nervures brownish.

♂. Unknown.

Type, Glen, Sioux county, Nebraska, altitude 4,000 ft., August 18, 1906 (P. R. Jones). This species is related to *varicoloratus*, from which it is very distinct, as set forth in the description.



DIAGRAMMATIC CHART SHOWING ANATOMICAL STRUCTURE AND WING VENATION. [Modified from Fernald.]

II.—*Histological Studies in the Artemisia Formation*

BY RAYMOND JOHN POOL

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INTRODUCTION

Many investigators have written on the subject of leaf histology and morphology in general, and a few have, in addition, touched upon the physiological significance of structures found during the progress of the study. Among these writers are Haberlandt, Pick, Stahl, Bonnier, Wagner, Hesselmann, and Clements. Most of the work, however, has been purely histological or morphological with little or no reference to environic forces. But in these later days of the development of the new ecology those forces or factors which have been potent in the evolution of plants and which are moulding plants today have come under careful observation and study, not only from the qualitative point of view, but also from the quantitative standpoint. Among the most important of these studies is the one by Dr. E. S. Clements on *The Relation of Leaf Structure to Physical Factors,* in which

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the author measured very carefully the physical factors which were operative in the production of the structures which she recorded.

However, most of the above studies have been more general than the one here reported. The authors have attempted to cover a greater mass of vegetation rather than to confine themselves to a single unit or a subdivision of vegetation. As indicated in the title, the study given here was made in a definite area or unit of vegetation—the *Artemisia* formation. This study does not include *all* of the species of the formation, but twenty-eight of the prominent ones.

The original thought was to make a careful study of the leaf histology of some of the more typical plants of this formation in relation to the physical conditions and to determine to what extent the leaf structure of the plants of the formation coincided with the present conception of xerophytic anatomy. An attempt was also made to discover the range of variation in physical factors, especially of water-content, of the formation and the bearing of this variation upon structural phenomena.

Since the term *formation* has often been used loosely without any definite or commonly accepted application, it is well that, before going further, I should define the term as I understand it and as it has been used in this paper. The confusion caused by the various conceptions or usages of such terms as formation, association, society, etc., is well known to every ecologist, and hence it is unnecessary to enter here into a detailed historical account of the various controversies over these matters. A plant formation as here regarded is the unit of vegetation. It does not take a well-trained botanist to recognize that certain areas of vegetation are marked out by certain conditions of the habitat. Any one can tell that certain areas are very clearly delimited by great differences in physical conditions. In other words, it is a commonplace observation that the distribution of plants is controlled by some more or less well-defined character of the substratum, and no one has the slightest difficulty in pointing out a swamp, a wet meadow, an open prairie, a coniferous forest, or a lichen covered cliff. The term *plant formation* is applied to

such an aggregation of plants as this, or, to formally define it, a plant formation is the collection of plants present in a habitat more or less clearly delimited, usually by certain physical conditions, in which the arrangement and the structure of the plants is the result of the adaptation of these plants to the environic forces of the habitat, and further characterized by the predominance of one or several species. To localize for the *Artemisia* formation it only remains to be briefly stated that this formation is characterized by a low water-content, high temperature, low humidity, xerophytic vegetation, and by the predominance of *Artemisia tridentata.*

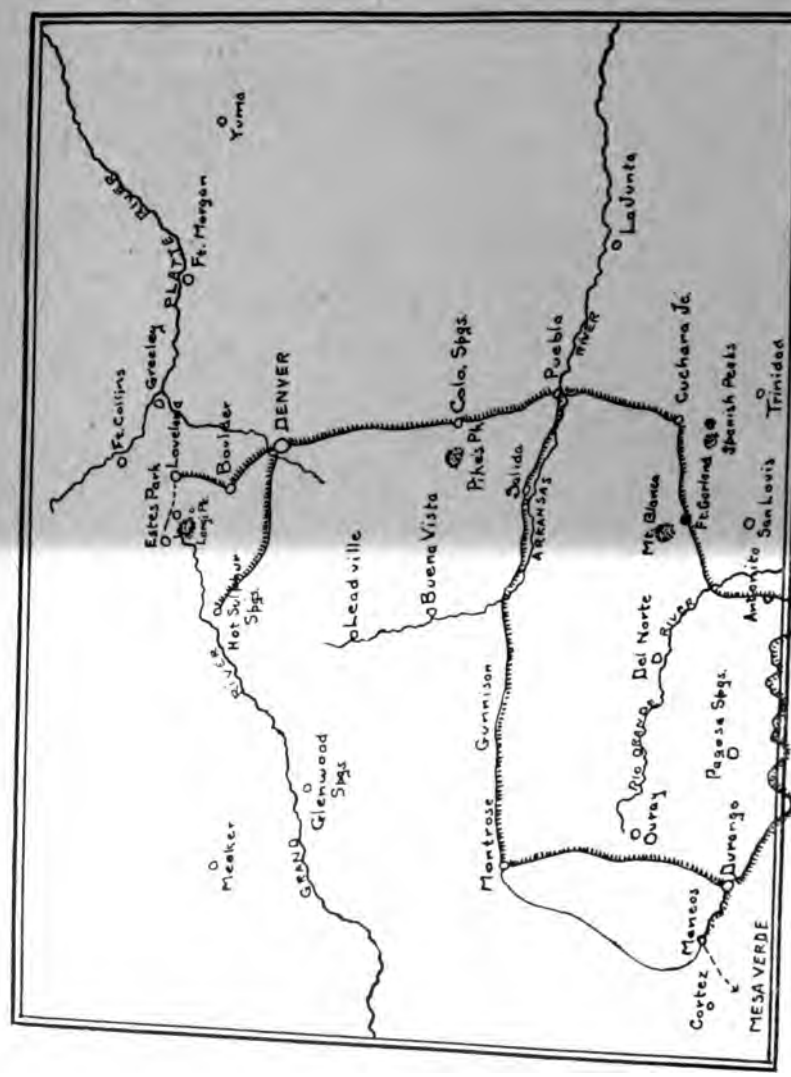
The geographical limits, the structure, and the development of the formation are not treated in this place, but are reserved for a future paper, when a more comprehensive reconnaissance of the whole formation shall have been made.

THE REGION IN WHICH THE FIELD STUDIES WERE MADE

The studies which constitute the field materials for the paper were made during the summer of 1907 from June 20 to August 30, in the *Artemisia* formation as it is found in the state of Colorado. The southern half of the state was covered quite thoroughly. The studies were ended in the north central part of the state. The most extensive studies were made at Fort Garland, Durango, Hot Sulphur Springs, and in Estes Park. A person familiar with the geography and physiography of the state will know from the above statement that the work was done mostly within the Rocky mountain portion of the state. The altitude of the formation ranges from about 1,500 m. (4,875 ft.) to 2,830 m. (8,500 ft.). No plants of *Artemisia tridentata* were found above an altitude of 3,000 m. (9,975 ft.). About 1,500 km. (2,500 miles) were traveled during the summer. The outline map on the following page will show the route followed and the location of the principal studies.

MATERIAL AND METHODS

As stated above only leaf studies were made, except in the case of *Juncus* in which the leaf functions are performed by the leafless



MAP OF COLORADO SHOWING THE LOCATION OF THE PRINCIPAL STUDIES

stems. Leaf material was collected and fixed in the field. A modification of Flemming's solution was used as the fixing agent. The material was killed from twenty-four to forty-eight hours, washed in the field, and preserved in 30 per cent alcohol until the party returned to Lincoln, when all the material, consisting of 168 vials of leaf sections, was run up to 60 per cent alcohol, where it was left until it was run on up and imbedded in paraffin. The sections were cut a uniform thickness of 15 μ, stained with safranin and licht grün, and mounted in balsam. Over two hundred permanent slides were made. These constitute the basis for the following studies and from which the figures were drawn. All the laboratory work was done in the laboratories of the department of botany of the University of Nebraska.

The methods of habitat study, or the study and determination of the physical factors of the formation were those laid down by Clements in *Research Methods in Ecology.*

SOIL-STRUCTURE, WATER-CONTENT, CLIMATE

In the southern portion of the state the *Artemisia* formation typically occupies a soil mainly of sedimentary origin, intermixed with loess and with a surface layer of small, slightly disintegrated quartzite and granite boulders. The granite of the region contains a rather high per cent of feldspar, so that on the whole the soil resulting from the decay of the granites is essentially a clay soil bearing rather fine sand particles. Farther from the foothills, however, as in the San Luis valley south of Fort Garland, the soil is a very fine homogeneous sand lacking the surface layer of small boulders. Such a soil is very deep and fine grained. It dries quickly on the surface, but contains too much sand to bake hard. This fine dry surface no doubt acts as a very excellent mulch in conserving the moisture below. This fact taken together with the homogeneous nature of the soil probably accounts for a certain peculiarity in the matter of water-content described below.

In the north, especially in Estes Park, the formation occupies more commonly the granitic soils, since these are the most common in that region. Disintegration of the exposed granite has

proc for vi s in the rock in ll has cu to a sufficient degree to fur- foot r j nts. On :h des *Artemisia tridentata* a t up m. (8,500). By the exercise of its ni fu on, addition litter and humus to the nally sc y p , considerable l has been accumulated, a plants n cover rather wide ar as through which yellow p e (*Pinus p*) is also scattered. The soil here, in con- t to that in ith, is very shallow, as well as rocky and velly. In it samples were taken with considerable culty.

om 108 water-content determinations for the region studied it is found that the average physical water-content or holard all depths in the formation was 13.3 per cent. The extremes e 27.9 per cent near the edge of an irrigation ditch at a depth of 8 dcm., and 4.0 per cent in the open homogeneous sandy soil at a depth of 2 dcm. in the absorbing area of a species of *Atriplex*. This minimum is very low. Probably it can be explained only by reference to the structure of the soil. As above stated, the soil here, Fort Garland, is a fine homogeneous sand with a very fine surface mulch of about a centimeter in depth. Now it must be that the echard, or the non-available water-content here is extremely low, probably less than 1 per cent. It is regretted that no determinations were made on this point, for certainly such would have been enlightening. The very great development of rootlets and root hairs was, however, noted for the above plants. This fact, together with the very hairy leaves containing much storage tissue, would indicate that here is a plant which is excellently adapted to a very low holard and in a way to prevent desiccation by excessive transpiration.

Another point brought out in the water relations of xerophytic plants during these field observations is that there was very little variation in the vertical distribution of soil moisture, especially in the homogeneous sandy soils of the formation. This condition is accompanied by a rather superficially developed root-system. In fact, the absorbing area for most species of the herbaceous associates of the *Artemisia* was found to be at a depth of about

2 dcm. and even with *Artemisia tridentata* itself the absorbing area was reached at a depth of one meter.

In determining the vertical distribution of moisture, soil samples were taken at depths of 2, 4, 8, and 10 dcm. In taking the deeper samples a pickax was used with the geotome, since only a 2 dcm. geotome was available. Whenever leaf material was taken soil water determinations were made from the absorbing area of the plant concerned in so far as was possible. In doing this for *Artemisia tridentata* the whole plant was first broken down and grubbed out. Because of the weakness of the trunk and roots this task was easily accomplished. Then the pickax and hands were used to excavate to about one meter below the surface where the geotome was driven down for the final soil sample. This was a comparatively easy task in the fine sandy soils, but in the rocky soils of the north it was more difficult to obtain a sample from the absorbing area of the larger shrubs. The vertical distribution of water-content showed a much wider range of variation in the rocky soils than in the even textured sandy soil.

In a recent number of the *Plant World* which came to hand as this paper was being written, MacDougal states that in his studies of desert vegetation he has found the same comparative uniformity in the vertical distribution of soil moisture. Because of this uniformity the root systems of the plants inhabiting such places exhibit a broad lateral development with a corresponding decrease in vertical range. The stratification habit of roots such as MacDougal mentions was not noted for the plants of this formation, probably because in most cases the individuals were so widely distributed that competition between the root systems of contiguous plants was reduced to a minimum.

In the matter of climatic conditions the region covered is arid. There is a great diurnal range in temperature for each locality. At Hot Sulphur Springs at an altitude of 2,600 m. (7,800 ft.) frost occurred on one or two nights during the latter part of July. But at noon or between noon and 3:00 P.M. a temperature of 40° C. was recorded in the *Artemisia* formation surrounding the village. The nights were not so cold in the south, but the days

were very oppressive with high temperatures and low humidities. The winters are cold and the summers hot for the region as a whole. The following table shows the mean annual precipitation for a number of stations within the range of these studies:

Fort Garland	35.70 cm.	(14.00 in.)
San Luis	29.50 cm.	(11.62 in.)
Durango	46.00 cm.	(16.16 in.)
Mancos	48.80 cm.	(17.29 in.)
Montrose	30.80 cm.	(12.30 in.)
Buena Vista	22.30 cm.	(8.75 in.)
Gunnison	23.10 cm.	(9.10 in.)
Pueblo	30.70 cm.	(12.11 in.)
Colorado Springs	36.80 cm.	(14.41 in.)
Boulder	47.00 cm.	(18.75 in.)
Hot Sulphur Springs	50.80 cm.	(20.00 in.)
Moraine Park	38.20 cm.	(15.00 in.)

STRUCTURAL STUDIES

Artemisia tridentata.

Since this is the plant which gives character to the formation it will be treated more thoroughly than the others, most of which are herbaceous species. This is the common plant of the West which predominates in those regions commonly called sage plains, or sage-brush regions. The species is a perennial shrub and is variously called by the names sage-brush, common sage-brush, sage-wood, mountain sage, etc. The short stem is usually much branched at or near the ground into from three to six or more slightly spreading or erect secondary stems. The main stem reaches a diameter of 15.20 cm. (6 in.) in the south. The tallest plants found were at Fort Garland, where they measured 2.50 m. (8 ft.) in height, and the smallest were in Estes Park, where the general height was about 45.60 cm. (18.0 in.). The species reaches considerably larger dimensions farther north and west where the formation is older. The main stem is often split and furrowed in nature and is covered by a thin, stringy, dark brown to ash-colored bark. The young twigs are silvery canescent.

The leaves are narrowly cuneate, 1–4 cm. long, varying in size and thickness somewhat for the habitat, and are typically three-toothed at the truncate apex. Heads of 5–8 yellow flowers are very numerous on the shoots of the year. The wood is of a dark olive brown color, coarse grained, with conspicuous vessels in the spring portion of the narrow annual rings. The wood is not strong, is easily split or broken by twisting. The root system is usually composed of three to six or more main branches which subdivide soon, thus forming a rather narrow root system.

The rate of growth is very slow. The largest plants at Fort Garland were fifty years old. The annual diameter increment was about 2.1 mm. (0.12 in.) for this locality. In the Estes Park region where the plants were 6.3 cm. (2.5 in.) in diameter and twenty-five years old the annual diameter increment was 2.5 mm. (0.10 in.). The plants show a slightly better development near streams and irrigation ditches, though not to the degree that might be expected, especially when compared with *Chrysothamnus graveolens,* a common associate which makes a much more luxuriant growth near the ditches. The size and the rapidity of growth of *Artemisia tridentata* is not much accelerated even when it grows near streams where the holard is considerably higher than in the normal habitat. This species is rarely found in the saline areas which are rather common in the formation in the South. It is replaced in such areas by the spiny chenopod, *Sarcobatus vermiculatus.*

The leaf structure coincides well with the common conceptions of such xerophytic organs. The leaf is covered both on the upper and the lower surfaces with a dense mat of interlocking T-shaped epidermal hairs, so protection is almost perfect in this regard. The structure of an individual epidermal hair is shown in figure 9, plate I. These hairs are usually composed of three cells, two of which constitute the stalk, and the third, the terminal cell, is drawn out into the long cross-bar of the T. They rise from a single epidermal cell. The stalk cells regularly show the presence of well-defined and apparently functional nuclei. The nucleus of the end cell was also found in a number of cases. The cells of the epidermis always contain prominent nuclei with a

peripheral layer of protoplasm. This fact may be rather surprising to those who have held the view that trichome cells and the cells of the epidermis are inactive and that they contain only air. The above facts indicate that such cells are not so "dead" as has been supposed. Indeed, most of the plants described in this paper showed the epidermal nuclei to be almost always present; in many cells it was very large and conspicuous.

Leaves from plants in the drier situations, for instance from a holard of 8 to 12 per cent, regularly show in addition to the lanate surface a well-defined cuticle (plate I, figs. 1 and 2). The leaf is greatly pitted so that in a transverse section the epidermis appears as an undulating chain of cells. In many of these pits are found peculiar multicellular epidermal glands which will be described below. Stomata are about equally distributed over the upper and lower surfaces. The chlorenchyma is composed of four rows of irregular, prolate palisade cells closely packed together, with very small intercellular air spaces. Two rows of these cells occur on each side of a median band of globose water storage cells. In the sections from the drier situations (plate I, fig. 1) this band is made up of two to three rows of cells with a close sheath about the vascular bundles. In these forms the cells comprising the bundle storage sheath are often filled with a mucilaginous or viscid cell sap. In no cases do the storage cells contain chloroplasts, although these cells do originate from chlorophyll-bearing cells.

The relative development of this median storage tissue shows some rather slight variation in the shade forms and in those growing under more moist conditions. Figure 2 was made from a plant growing in a holard of 18 per cent. Here the storage region is reduced to a single plate of cells, and the bundle sheath never contains mucilaginous material. Otherwise the leaf is the same. Figure 3, plate I, shows a leaf section from deep within the same plant from which figure 2, plate I, was made. This leaf grew under a lower light intensity than the other. The structural differences noted are that, first of all, the leaf is much broader and thinner. The epidermal hairs are more scattered, there is no cuticle at all, storage cells are not so numerous, and the two inner

rows of palisade show a more or less sponge-like nature, stomata are fewer in number per unit area, and the epidermal glands are almost lacking.

Figure 4, plate I, shows the structure of the leaf from the same species growing in the shade of a cluster of spruce trees in Estes Park. The chlorenchyma is even looser here, and the water storage function has about reached the minimum for the species.

Soil structure has not left any histological impress on the species. Those individuals growing in the sandy or sedimentary soils and those in the granitic soils under the same conditions of light and moisture exhibit the same leaf anatomy. The structure shown in plate I, figure 1, probably is to be taken as that of the normal leaf of *Artemisia tridentata* since this is the structure found in the more typical situations.

The epidermal glands are always found in the pits in the epidermis, and in the natural state they are surrounded and overtopped by the T-shaped epidermal hairs. Plate I, figure 8, *a, b, c, d,* shows the gland in position in four stages of development. The sections are transverse sections of the leaf; hence the glands which are soon cut off by a transverse septum, figure 8, *a*, are cut longitudinally. The gland first appears as an upward protrusion of a single epidermal cell. This protrusion extends farther into a regular globose or dome-shaped structure, which remains unicellular until it is about three times the thickness of an epidermal cell. About this time a second cell is formed at the tip by a peculiar bud-like division, figure 8, *b*. The end cell then continues to enlarge at the point of contact with the lower cell, which may be termed the stalk cell, until it forms a cap-like covering over the distal end of the stalk cell, figure 8, *c*. By this time the stalk cell has elongated considerably and has divided again, so that we now have a two-celled stalk covered by a calyptra-like distal cell, figure 8, *c*. Soon the distal cell is divided by radial partitions into three or four cells as shown in figure 8, *d*, and the outermost cells have grown down, enclosing the whole stalk except the lowermost cell, which always remains free. This is the most common form of the gland. The cells of the glands are filled with a dense granular, mucilaginous, volatile substance. This doubtless is the

source of the odor so characteristic of the species. No microchemical tests of the contents were made, so that the chemical nature of the secretion is not known.

The greatest development of glands in number and size takes place under the most arid conditions and in the highest light intensities. This might indicate that there is some correlation between the development of epidermal glands and the factors of the habitat, although I am not yet ready to indicate the exact formative causes. They may be in some measure protective.

Artemisia frigida. Plate I, fig. 5.

This plant shows about the same variation in leaf structure as that found for its larger sister species. The species belongs to the dissected leaf division of the genus. Figure 5, plate I, shows the structure of the leaf of *A. frigida* from the same situation as *A. tridentata,* the leaf structure of which is shown in figure 1. The epidermis is covered with a fine canescent coat of single-celled, needle-shaped hairs. In addition to this protection a thin cuticle is present. There are no epidermal glands. The chlorenchyma corresponds closely to that of *A. tridentata,* being of two rows of close prolate palisade cells on each side of a narrow median layer of storage cells. The vascular bundles are encased in a sheath of storage cells. Plate I, figure 6, shows the structure of the same species from a shady brook bank where the holard was 19 per cent and the light intensity was considerably lower than in the open formation. The plants were taller and the leaves broader than those in stronger light. The cuticle is still present, but the epidermal hairs are much fewer in number. The palisade is not quite so closely aggregated as in figure 5. There is no true water storage tissue except as a very narrow sheath about the vascular bundles. The median zone of cells here contains chloroplasts, the individual cells being more or less oblate, and they apparently perform the functions of ordinary sponge cells.

Artemisia canadensis. Plate I, fig. 7.

This material was taken from a rocky hillside where the light was unity and the holard was 10 per cent. The epidermis is comparatively free of hairs, but the species has compensated for loss

in this direction by developing a much thicker cuticle and more water storage tissue than is to be found in its lanate relatives. The upper cuticle is 6 μ thick, while that on the lower side is scarcely less. The chlorenchyma is composed of two rows of palisade on the upper and lower sides, separated by a broad band of storage tissue composed of large, clear, globose cells. Numerous resin canals are scattered through the storage layer, the significance of which can not be explained at present. This species may be classed with the smooth-leaved, more or less succulent xerophytes.

Allionia linearis. Plate II, fig. 10.

Material of this species was collected in the same situation from which the *Artemisia* material for figures 1 and 2 was taken, where the holard was from 8.0 to 10.0 per cent in fine sandy soil. In general the structure is about the same as E. S. Clements found in the same species from a gravel slide with a chresard of 2.5 per cent to 5.5 per cent. However, the leaf is somewhat more xerophytic in structure than the leaf found by Dr. Clements. A rather striking point noted was in the cuticularization of the leaf. The lower cuticle is thicker than the upper cuticle, an apparent anomaly which is probably explained by the fact that during the hot hours of the day the leaf is folded closely on the midrib with the lower epidermis outermost. The shape is that of an acute dihedral angle with the midrib at the vertex.

There are five rows of prolate palisade cells with no indication of sponge cells in the lower portion of the leaf such as Clements found in her material. We have here a typical staurophyll. The vascular bundles are small and are always encased by a sheath of storage cells. There are many crystal sacs scattered through the chlorenchyma.

Odostemon aquifolium. Plate II, fig. 11.

This species is not a true associate of the *Artemisia,* but is found in the formation where it meets a forest or a thicket formation. It is to be regarded as an invader. The leaf is interesting because of its extreme xerophytic structure. The cuticle on the upper surface is made up of a series of undulating layers or lamellae and

Scutellaria brittoni. Plate III, fig. 18.

This material came from a holard of 9.4 per cent. A very thick cuticle (8 μ) covers both surfaces with a smooth shiny coat. The epidermal cells are filled with a mucilaginous sap. The chlorenchyma is composed of two rows of prolate palisade cells and from three to four rows of more or less globose sponge cells. The whole tissue is very compact, the intercellular air spaces being reduced to mere lines or tiny triangular openings. No water storage cells are found except a sheath of a single row of clear cells about the vascular bundles. The shade form of the species shows a much looser leaf structure, but the above is the normal for the *Artemisia* formation.

Thelypodium wrightii. Plate III, fig. 19.

Scattered, forked epidermal hairs occur here with a well-developed cuticle over both surfaces. The epidermal cells are large and lens-shaped. The chlorenchyma is much like that of *Scutellaria* above except that there are a greater number of rows of cells. In this species there are four regular rows of closely aggregated palisade cells and four to five rows of compact globose sponge cells. The only storage tissue present is found in the vascular bundle sheath of a single cylinder of cells.

Pentstemon trichander. Plate III, figs. 20 and 21.

Figure 20 shows the structure of the stem leaf and figure 21 that of the rosette leaf from the same individual of this species. The holard at 2 dcm. was 8.5 per cent; the temperature on the surface of the soil was 50° C.; the humidity was 23 per cent. At a height of ½ m. or that of the stem leaf the temperature was 35° C. and the humidity was 32 per cent. Both the leaves are well-cuticularized, the cuticle being from 4 to 6 μ in thickness. The chlorenchyma in the stem leaf is entirely composed of palisade cells, seven rows in number. In the rosette leaf there are the same number of rows of cells, but the four lower rows are very sponge-like, with comparatively large intercellular air spaces. The three upper rows are like those in the stem leaf. In the rosette leaf the epidermal cells are filled with a dark mucilaginous cell sap. The stem leaf shows less color in the epidermal cells.

Atriplex cornuta. Plate III, fig. 22.

This species is a common associate in the drier and slightly saline situations. The epidermis is effectively protected by large globose epidermal hairs covering the non-cuticularized epidermis. These globose hairs or scales are the chief constituent of the so-called "mealy" covering so characteristic of the chenopods. The hair is usually composed of two cells, one the stalk, or pedicel, very short and narrow, the other, the end cell, being the swollen globose head which in some may be half as thick as the leaf. The chlorenchyma is composed of four rows of prolate palisade cells rather loosely aggregated. There are large air chambers immediately beneath the stomata. There is no indication of mucilaginous storage tissue. The holard here was 8.3 per cent.

Atriplex canescens. Plate III, fig. 23.

This is a common shrubby associate of *Artemisia*. The wood is very hard. It is sometimes called "greasewood." The epidermal walls are not cuticularized, but, as in the above species, we have here a dense "meal" of the large globose epidermal hairs of the structure described above. The protection is much more perfect in this respect than in the above species because the scales are more numerous and closely aggregated. The chlorenchyma is composed of about four irregular rows of prolate palisade cells closely packed together with very narrow intercellular air spaces. The development of storage tissue is marked in this species, the vascular bundles being always enclosed wholly or in part by a sheath of mucilaginous cells. In some cases this sheath is continuous around the bundle, but in others it surrounds the bundle except at the bottom. In the latter case the sheath fits about the bundle like a horseshoe with the open portion toward the lower side of the leaf. In transverse section the cells of the sheath are globose or keystone-shaped, and they are about five times as long as broad in the direction of the vascular bundle.

Lupinus ammophilus. Plate IV, fig. 24.

This leaf lacks a cuticle and possesses only a few epidermal hairs. Many of the epidermal cells are thrown up into short papillae. The chlorenchyma is composed of two rows of dense

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G e sarothrae. Plate IV, fig. 25.

Th e sh s a well-developed xerophyll with few epi- l hairs, ll eloped cuticle, and a closely packed chloren- chyma. is is arranged in four rows with very small intercellular Storage cells are confined to the vascu- lar bundle sheaths. S of the cells of these sheaths contain gummy sap, and there are a few other such cells scattered in the region near the bundles.

Aragallus sericeus. Plate IV, fig. 26.

The leaf in this species is covered by a close mat of epidermal hairs. There is also a well-developed cuticle. The chlorenchyma is very loose, being composed of regular scattered prolate palisade cells. The bundles are surrounded by a sheath of clear storage cells.

Lupinus parviflorus. Plate IV, fig. 27.

This species was growing in the edge of a wet meadow at Hot Sulphur Springs in a saturated soil. It is given here to contrast with figure 24, from the *Artemisia* formation. This species shows a single row of long palisade cells, with a very open sponge tissue. There is no storage tissue whatever.

Delphinium ramosum. Plate IV, fig. 28.

This species grew in the *Artemisia* formation on a northeast slope where the soil moisture conditions were good. The leaf is smooth and is not covered with cuticle. The chlorenchyma is composed of regular prolate palisade cells very loosely aggregated. There is no sponge tissue. The vascular bundles may or may not be encased by a sheath of storage cells.

Orthocarpus luteus. Plate IV, fig. 29.

Rather oddly this plant possesses a leaf composed entirely of sponge cells closely aggregated in this species. There are scattered glandular epidermal hairs which give the leaf an oily nature. There is no indication of a cuticle or of water storage tissue.

Phacelia heterophylla. Plate IV, fig. 30.

Epidermal hairs here are very large and stiff. The cuticle is well developed on the upper surface, but is lacking on the lower side. The upper epidermis is filled with oil drops. The chlorenchyma is composed of a single row of long prolate palisade cells, and about three rows of very irregular sponge cells, each portion occupying about one-half of the whole tissue. The only storage cells present are in the narrow sheath about the vascular bundles.

Delphinium occidentale. Plate IV, fig. 31.

This structure is given to show an apparent deviation of structure from that which has been found rather typical for the formation. This material came from the *Artemisia* formation on a southwest slope where the holard at 3 dcm. was 9.6 per cent, and yet the structure is that of a mesophyte, a rather loose palisade and a very open sponge. A thin cuticle covers both surfaces, and the bundle sheath of storage cells is well defined, structures which were lacking in the wet meadow form above.

Calochortus nuttallii. Plate V, fig. 32.

This species shows the homogeneous spongy chlorenchyma. The plant is a common member of the formation southwest of Durango in a holard of 10 per cent. The leaves are very smooth and shiny and firm, due to the very thick cuticle over both surfaces. Storage tissue is not present in the species. The leaves are long, narrow, and grass-like in form and are often folded together on the midrib.

Chrysothamnus graveolens. Plate V, figs. 33 and 34.

These two figures show the structure of the dry and the moist forms respectively of this species. Figure 33 is from a holard of 8 to 11 per cent, and figure 34 from a plant growing near the

palisade, three rows being arranged on each side of a median band of sponge-like cells which are more or less oblate in outline. The only indication of storage tissue is to be found in the vascular bundle sheath.

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This species was growing in the edge of a wet meadow at Hot Sulphur Springs in a saturated soil. It is given here to contrast with figure 24, from the *Artemisia* formation. This species shows a single row of long palisade cells, with a very open sponge tissue. There is no storage tissue whatever.

Delphinium ramosum. Plate IV, fig. 28.

This species grew in the *Artemisia* formation on a northeast slope where the soil moisture conditions were good. The leaf is smooth and is not covered with cuticle. The chlorenchyma is composed of regular prolate palisade cells very loosely aggregated. There is no sponge tissue. The vascular bundles may or may not be encased by a sheath of storage cells.

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Rather oddly this plant possesses a leaf composed entirely of sponge cells closely aggregated in this species. There are scattered glandular epidermal hairs which give the leaf an oily nature. There is no indication of a cuticle or of water storage tissue.

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Epidermal hairs here are very large and stiff. The cuticle is well developed on the upper surface, but is lacking on the lower side. The upper epidermis is filled with oil drops. The chlorenchyma is composed of a single row of long prolate palisade cells, and about three rows of very irregular sponge cells, each portion occupying about one-half of the whole tissue. The only storage cells present are in the narrow sheath about the vascular bundles.

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Chrysothamnus graveolens. Plate V, figs. 33 and 34.

These two figures show the structure of the dry and the moist forms respectively of this species. Figure 33 is from a holard of 8 to 11 per cent, and figure 34 from a plant growing near the

edge of a stream where the holard was 27.5 per cent. The plants in the moister situation made a much more luxuriant growth, the leaves were broader and the stems thicker than those from the dry soil.

Figure 33 represents a whole transverse section of the leaf of the dry form. The leaf is free from epidermal hairs, but is covered by a fine corrugated cuticle. The chlorenchyma is entirely palisade, the cells being very small and the intercellular air spaces being reduced to mere lines. The median storage portion is made up of globose cells in several layers completely surrounding the bundles, and in the region of the midrib they extend laterally to each epidermis. Opposite each bundle on the lower side and within the storage region is a large resin canal. The development of these canals will be described presently.

The leaf of the moist form (fig. 34) shows some variation from the above structure. In the first place it is much broader, but not any thinner. The chlorenchyma is composed of few, more loosely aggregated palisade cells, and the storage region is considerably reduced. The storage cells here are oblate and they resemble sponge cells rather closely. In the young leaf they actually contain chloroplasts. The resin canals are equally typical for this form and they occupy the same position.

THE INTERCELLULAR RESIN CANALS OF CHRYSOTHAMNUS GRAVEOLENS

As stated above, these canals are found singly opposite the vascular bundles in the lower portion of the leaf. They traverse the leaf and petiole longitudinally as tiny tubes when they are mature. They usually acquire a circular transverse section. The canals were not traced farther than the petiole, but they probably continue into the cortex of the twigs and stems.

The development was followed from the first appearance to ıe mature canal. The position in the leaf tissue is seen from her figure 33 or 34, plate V. There are about four great stages the development of the canals. Figure 38 shows the structure detail through a vascular bundle and one of the canals.

These structures are lysigenic in origin, i. e. they arise by the

rupture (schizogenous in part) and disorganization of more or less permanent tissues. The beginning is marked by a single cell filled with a dense, yellowish-brown, mucilaginous protoplasm, figure 35. This cell stands out very plainly among the clear surrounding cells of the storage region, and this, the primordial cell, marks the position of the future canal. The color and mucilaginous or resinous appearance spreads from the first cell to those adjacent, and subsequently the walls of the primordial cell are dissolved and the several secretory cells thus opened contribute their contents to the young canal, figure 36. This disintegration and solution proceeds for some time until finally the cavity of the canal appears, figure 37. In the mature state the cavity is surrounded by the epithelial-like layer of secretory cells. Finally, an open longitudinal canal is formed with the structure shown in figure 38.

The function of these canals or of the secretion can not be explained at present. The chemical composition of the resinous secretion was not determined.

Juncus balticus. Plate VII and plate VIII.

This species furnishes the most striking differences in structure between the moist and the dry form found during this study. The material from which both the figures were made was collected at Fort Garland where the species was found widely distributed in the wet meadow north of the village and also in the adjacent *Artemisia* formation. In the wet meadow the species formed close, compact groups interspersed with various species of *Carex,* but in the *Artemisia* formation it occurred as rather widely scattered individuals. It did not occur in close groups in this habitat. Figure 41, plate VII, was made from the moist form. The soil in the meadow was covered with an inch of water, therefore it may be considered saturated. Figure 42, plate VIII, was made from the dry form from the *Artemisia,* where the holard was 10 per cent. Both figures were made at the same height from the ground.

These two stems show such a great difference in structure that, although from all that could be made out, they are from the same species, there is the possibility that we may have here two

different species, and yet there is not a species of *Juncus* described from the region for the *Artemisia* formation. Surely they are two different species viewed from the histological structure, but from the taxonomic standpoint they are apparently the same, and we have here the extremes of histological differentiation within the species.

The wet-meadow form (fig. 41) shows a thick epidermis with a very thin cuticle and few stomata. The chlorenchyma consists mainly of two rows of palisade cells closely aggregated, besides a single row of globose cells just beneath the epidermis. The palisade cells have a tendency to radiate from the vascular bundles. There is one large central vascular bundle with a peripheral chain of about 15 to 16 smaller bundles immediately beneath the palisade. On the interior and connecting all the bundles is an open reticulum of cells which forms the boundaries of the internal aeration chambers. The individual vascular bundles show a fair development of transportive elements or xylem with a slight development of supportive elements or fibers. The bundles lack a well-defined sheath of wood fibers which is so characteristic for the monocotyledonous vascular bundle.

In the dry form we find that the cuticle is three times as thick as in the above stem, it having filled about one-half of the cell cavity. The number of stomata is greatly increased, there being twenty on the section here to six on the other form. From actual counts for equal areas the ratio of the number of stomata in the two forms is 10 moist form to 30 dry form. In this stem the chlorenchyma is about doubled over its moister neighbor, and it is so compact that it is almost impossible to see the intercellular air spaces. The center of the stem is at first made up of a uniform tissue of globose cells which breaks down as the stem gets older and finally leaves a central longitudinal cavity as shown in the figure.

The most noticeable difference, however, is in the number and the structure of the vascular bundles. These are disposed in the form of three more or less regular peripheral rings. The outermost ring is composed of small, inconspicuous bundles much like those in the meadow form. There are about twelve of these

small bundles. The next or middle row occurs only a little nearer the central cavity and is composed of about eighteen bundles. Alternating with the members of the second row the innermost ring or chain possesses the same structure as the former. The individual unit of these two conspicuous rings is composed usually of two, sometimes three or four, large open vessels in the xylum or inner portion. Opposite these vessels and separated from them by a plate of fibers is a circular or globose mass of phloem, mostly sieve tubes. The whole is then surrounded by a thick sheath of highly lignified fibers with small cavities. Outside the bundle is a sheath of storage cells. In this section, then, we have a total of forty-two vascular bundles as against sixteen in the meadow form. The woody or the supportive portion of the individual bundle is greatly developed here.

There is considerable doubt as to what interpretation should be placed upon the above structural phenomena. The relative increase in photosynthetic tissue and in vascular bundles may be developed in response to physiological phenomena. De Bary makes the statement that, "The comparison of nearly related species inhabiting the water and the land respectively demonstrates among the former a considerable diminution in the development of bundles, which may extend to the disappearance of the xylem." This fact has been noted already for a number of species, but in none is it so marked as in this species of *Juncus*. Surely the two forms possess the structures necessary to fit each to its particular habitat. Perhaps the greater accumulation of chlorenchyma in the dry form may be accounted for by a greater light intensity. Although light determinations for the two forms were not made, it was very evident that the available insolation for the *Juncus* in the wet meadow was much less than that for the species in the *Artemisia* formation because of the crowding in the former habitat. It is well known that the stronger light will, to a certain degree, accelerate the development of chlorophyll resulting in an increase in the number of chloroplasts and ultimately in a greater number of cells containing chloroplasts. This condition would imply a greater photosynthetic activity which would necessitate a much increased supply of carbon dioxide, which would be avail-

able only by the development of a greater number of stomata. The increased number of stomata would tend to bring about a greater loss of water from the plant by transpiration which could only be offset by a great increase of absorbing area at the roots together with the development of a greater number of conducting channels, both of which points are abundantly proved. The thick cuticle certainly prevents water-loss directly through the epidermis. The greater development of fibrous tissue in the dry form might indicate that this was for support, but why such a need for increased support? The dry form was scarcely larger than the moist form, and, if anything, the latter was exposed to wind and other forces more directly than was the form among the *Artemisia* plants. The whole process is a very slow one, and the exact sequence of events, together with the factors directly concerned, could be proved only by control cultures.

"Water Storage Tissue."

In this study whenever structures were found which corresponded to those cells or tissues commonly called "storage" cells or tissues, I have not hesitated to so designate them. I am aware, however, of the fact that this whole question is still a more or less open one. Although the great majority of the plants in this study show more or less well-developed structures of this kind, we must still exercise considerable reserve in attempting to explain the full significance of "water storage cells." Perhaps this character is more universally present in plants of arid or desert habitats where the holard is very low; yet it is also present in a number of plants which inhabit swamps and indeed moist tropical jungles. It is developed in many unrelated families so that it bears no apparent connection with phylogenetic affinity. The exact significance, then, of these structures has not been demonstrated, and it is imperative that some one should take the problem in hand and work it out so that all doubt or controversy is removed and the true nature of "storage cells" is determined. All through this investigation I have noted that these cells retain the stains very tenaciously after the contiguous cells or tissues have been perfectly cleared. This shows that their power of retention of stains is marked, but whether they exercise the same

force over their water-content and yield up water to neighboring tissues only in time of extreme need is not known. In many cases a latex-like substance is present. Parkin in his studies on Ceylonese latex-bearing plants came to the conclusion that the chief function of latex is water-storage. We can not attempt to explain the full meaning of water-storage cells until the exact physical and chemical nature of the contents of such cells is determined. Because of its evident relation to xerophytic vegetation the problem demands a speedy solution.

SUMMARY

The chief points reported in this paper may be summarized briefly as follows:

1. The *Artemisia* formation is an arid, xerophytic formation.
2. The average holard is 13.3 per cent. The humidity is low and the temperature is high.
3. Humidity and temperature show great diurnal fluctuations.
4. Plants are found in a holard as low as 4 per cent.
5. There is very little variation in the vertical distribution of soil moisture in the sandy soils of the formation.
6. Root systems are superficial; and the absorbing area of the roots is greatly augmented by the increased number of rootlets and root hairs.
7. *Artemisia tridentata* is rather stable in the matter of leaf structure. The mean annual increment of the species is very low.
8. The plants of the formation as a whole are stable.
9. The presence of a close covering of epidermal hairs does not necessarily preclude cuticularization. When one is lacking the other is usually present.
10. Nuclei are normally present in the epidermal cells of the plants found in the *Artemisia* formation.
11. There is a great predominance of palisade over sponge tissue; the chlorenchyma is very compact, the intercellular air spaces being reduced to mere lines in many species.
12. "Water storage tissue" is present in nearly all of the species investigated.

In conclusion I wish to express my greatest appreciation and thanks to Professor Doctor Frederic E. Clements of the University of Minnesota who suggested this study, and who was my adviser during all the field work; also to Professor Doctor Charles E. Bessey of the University of Nebraska, to whom I am indebted for much counsel and advice during the progress of this study.

LITERATURE

CLEMENTS, F. E.
Research Methods in Ecology. 1905.

CLEMENTS, E. S.
Relation of Leaf Structure to Physical Factors. Trans. Am. Micros. Soc., 25. 1905.

DEBARY, A.
Comparative Anatomy of the Vegetative Organs of the Phanerogams and Ferns. 1884.

HABERLANDT, G.
Vergleichende Anatomie des assimilatorischen Gewebsystems der Pflanzen. Prings. Jahrb., XIII, 74.
Physiologische Pflanzenanatomie, 1904.

MACDOUGAL, D. T.
Problems of the Desert. *Plant World*, vol. 11, no. 2, Feb. 1908.

PARKIN, J.
Ann. Bot. 14:193–214. 1900.

EXPLANATION OF PLATES

All figures were drawn with the aid of an Abbe camera lucida, using Bausch & Lomb microscope stand BB with objective 2/3 0.24 N. A. with ocular 1, except figures 35, 36, 37, 38, 39, and 40, which were drawn under a higher magnification by using objective 1/6 0.85 N. A. with the same ocular. All figures are drawn to the scale of 120 diameters, except figures 35, 36, 37, 38, 39, and 40, which were drawn to the scale of 720 diameters, and all reduced one-half.

PLATE I

Fig. 1. *Artemisia tridentata* from dry rocky ridge.
Fig. 2. *Artemisia tridentata* from top of plant in full illumination.
Fig. 3. *Artemisia tridentata* from within the bush, diffuse light.
Fig. 4. *Artemisia tridentata* from shade of spruces.
Fig. 5. *Artemisia tridentata* from open formation.
Fig. 6. *Artemisia tridentata* from the edge of a creek bank.
Fig. 7. *Artemisia canadensis* from a rocky slope.
Fig. 8. Epidermal gland of *Artemisia tridentata* in four stages.
Fig. 9. Epidermal hair from *Artemisia tridentata* showing nuclei.

PLATE II

Fig. 10. *Allionia linearis* from the drier portions of the formation.
Fig. 11. *Odostemon aquifolium*, a transition species. Very thick cuticle.
Fig. 12. *Lupinus pusillus*. Thick cuticle; sponge-like storage.
Fig. 13. *Lappula occidentalis*. Mucilage cells, thick cuticle.
Fig. 14. *Drymocallis fissa*. Thick epidermis filled with mucilage.
Fig. 15. *Eriogonum flavum*. Dense palisade; median storage band.
Fig. 16. *Gaura coccinea*. Storage tissue; mucilage in epidermis.
Fig. 17. *Linum lewisii*. Mucilage in epidermis and about bundles.

PLATE III

Fig. 18. *Scutellaria brittoni*. Heavy cuticle.
Fig. 19. *Thelypodium wrightii*. Cuticle; lens-shaped epidermal cells.
Fig. 20. *Pentstemon trichander*. Rosette leaf; all palisade.
Fig. 21. *Pentstemon trichander*. Stem leaf; palisade and sponge.
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Fig. 29. *Orthocarpus luteus*. Homogeneous spongophyll.
Fig. 30. *Phacelia heterophylla*. Mucilage in epidermis; upper cuticle.
Fig. 31. *Delphinium occidentale*. From a rocky slide; an apparent anomaly.

PLATE V

Fig. 32. *Calochortus nuttallii*. Thick cuticle; homogeneous sponge.
Fig. 33. *Chrysothamnus graveolens*. From dry situation, much storage; corrugated cuticle, resin canals.
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Fig. 34. *Chrysothamnus graveolens.* From creek bank.

PLATE VI

Figs. 35, 36, 37, 38. The development of the resin canal in *Chrysothamnus graveolens.*
Fig. 39. Glandular hair from *Drymocallis fissa.*
Fig. 40. Epidermal gland from *Gutierrezia.*

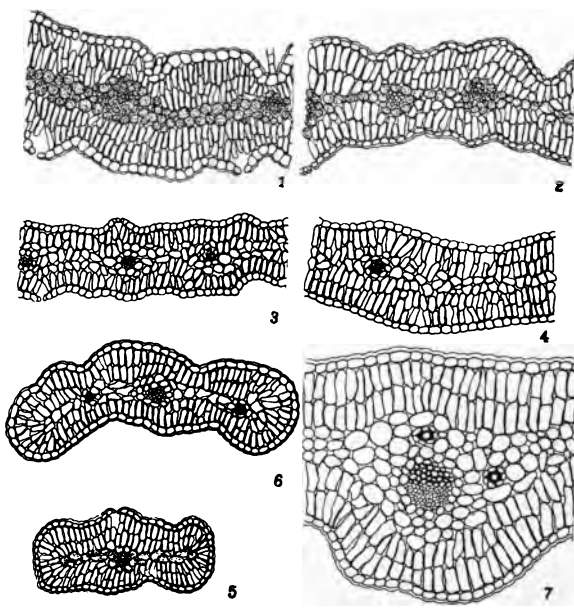
PLATE VII

Fig. 41. *Juncus balticus.* From wet meadow formation.

PLATE VIII

Fig. 42. *Juncus balticus.* From *Artemisia* formation. The stippled portion represents the chlorenchyma in this figure and in figure 41.

PLATE I



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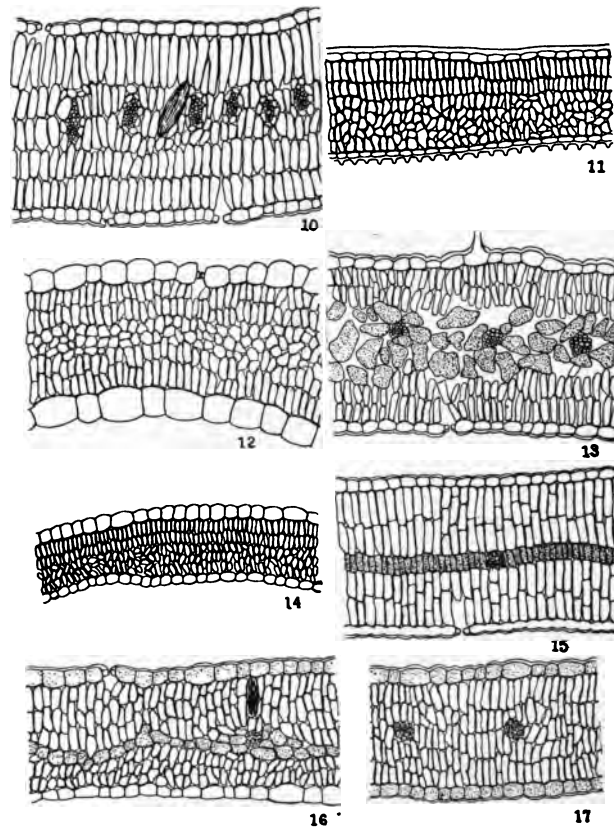

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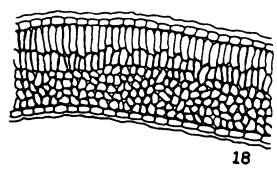

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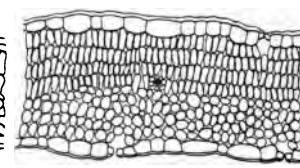

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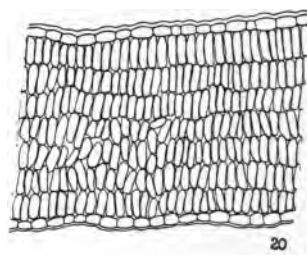

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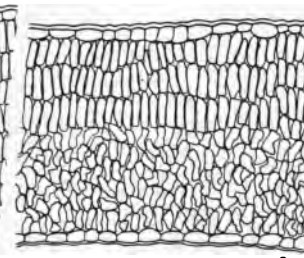

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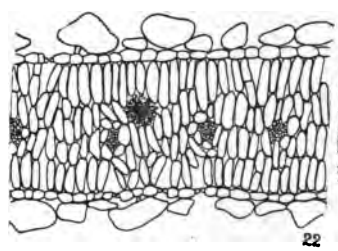

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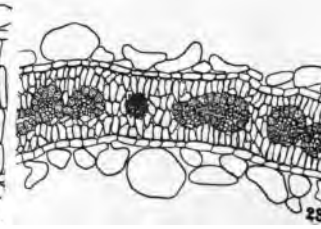

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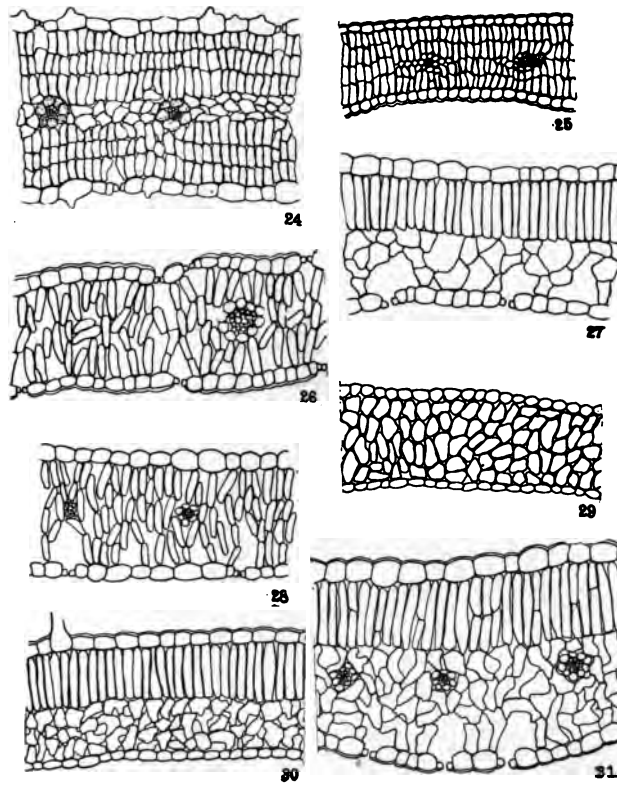

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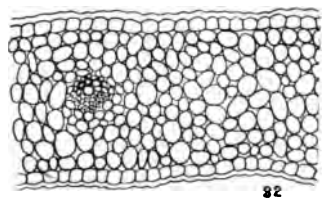

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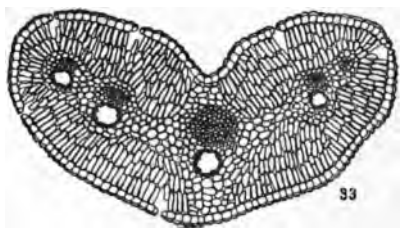

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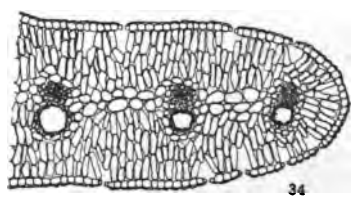

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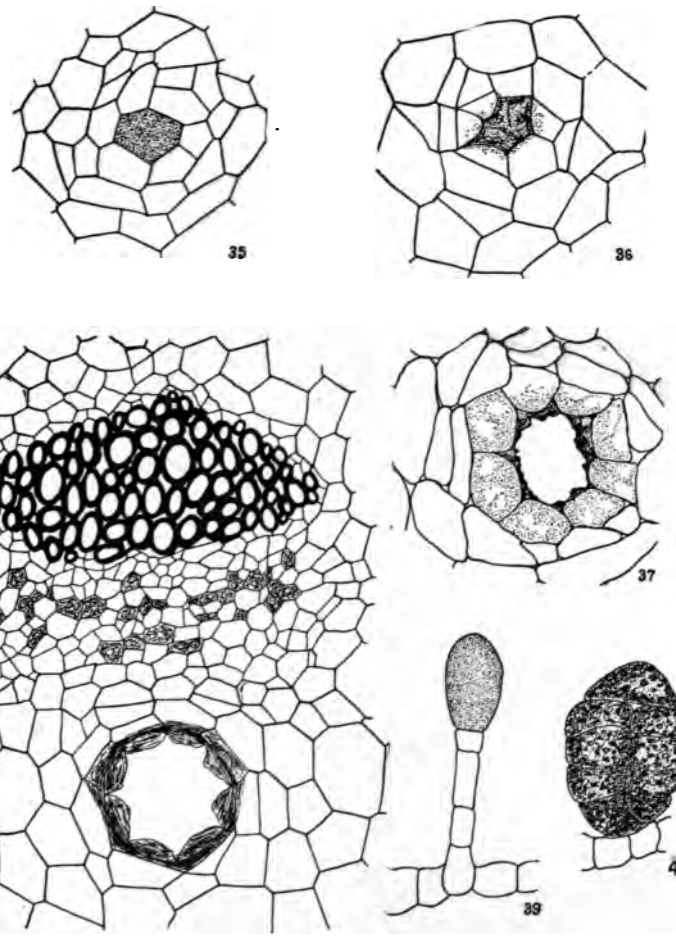

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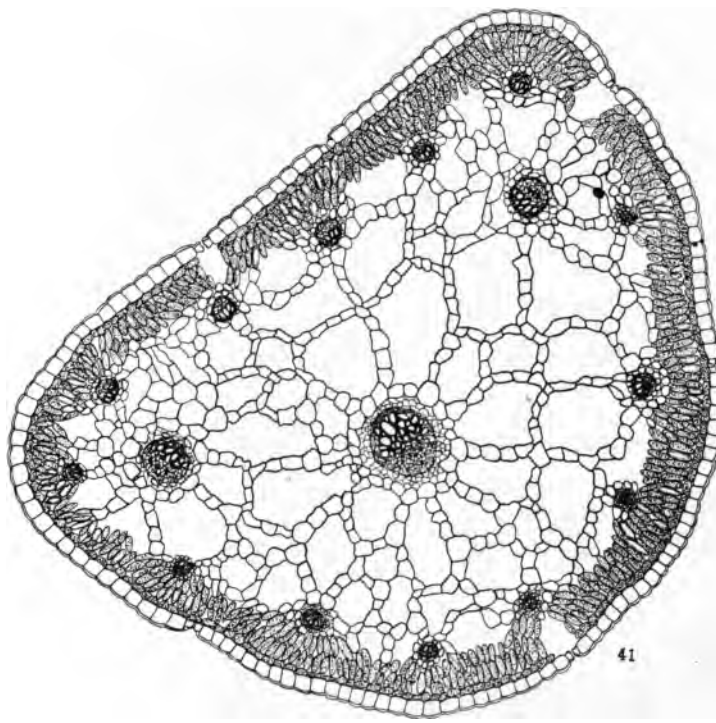

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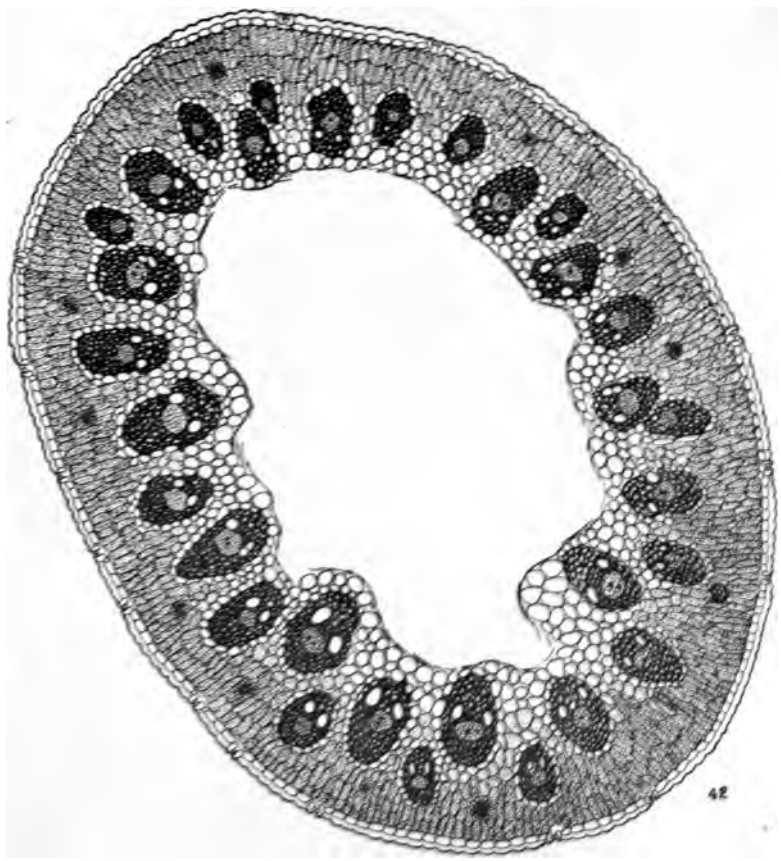

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